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ORIGINAL LECTURES.

ANTISEPTICS; HOW USED AND HOW MADE AT THE NEW YORK HOSPITAL.

A Clinical Lecture.

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IN beginning my annual course of clinical lectures I wish briefly to place before you in a practical way how antiseptic dressings are made and used in this hospital. I have little or nothing new to present to you concerning the great truths upon which the antiseptic treatment is based. It is known to you all that we are continually surrounded by germs of many varieties. Miquel has found, for instance, that the ordinary atmosphere of a large city contains over 2000 bacteria per cubic yard, while the air of a room of an old house in winter will show bacteria to the amount of 45,000 per cubic yard, and again that the wards of a long-used hospital will hold as many as 90,000 germs in the same space. This same observer has shown, and others have confirmed it, that sea air contains scarcely any of these micro-organisms, and that mountain heights are as nearly free from them for obvious reasons; also that there are more of them to be encountered in our houses and hospitals in winter than in the spring time and in summer.

But all these microörganisms are not infectious, or, speaking more strictly to what chiefly interests us, are not capable of begetting inflammation and suppuration. Only relatively few of them can do this. I will not stop to enumerate even this short list of infectious germs. I shall only dwell upon the two facts, that one of them, the so-called staphylococcus pyogenes, is the factor in producing suppuration in the large majority of instances. Reliable authorities say that they exist in seven-eighths of the cases, and that no formation of pus can be brought about clinically or experimentally save by the aid of such or similar organisms, or by the ptomaines or juices that they create. With these facts at hand you can easily grasp the subject of antisepsis.

There is perhaps one other point that can here be appropriately placed before you; it is that the living tissues of the body have a certain power of resistance to the evil influence of germs, and it requires, according to the Scotch observer Cheyne, an appreciable amount of infectious germs to make an inroad upon the system. This explains why we are not all destroyed whenever a scratch occurs on the finger, etc.

From the foregoing remarks you can readily see that the destruction of infectious germs or the hindering of their natural multiplication is the end of our antiseptic treatment. Lister's dictum, that you should act as if you saw germs lighting on every wound you have to do with, leads to a correct treatment. You should try to kill them as you would a flea, and you have a better chance with the germ than you have with the insect. Cleanliness alone will not do this—wash your hands as you will, your ordinary instruments, or your sponges with soap and with water, and yet in testing all these with the well-known culture tests, colonies of bacteria will be developed, this Kümmel[1] has fully proven. Cleanliness, personal and otherwise, is of great moment, and it will make a vast improvement in your surgery; but unless you conjoin with it large experience and marvellous skill, you will hardly equal the tyro who adds to cleanliness the use of antiseptic measures. Look for a moment at this table, which shows you at a glance the impression antisepsis has made upon the surgical world. Here are the names[2] of the masters of the chirurgical art acquiescing in using the principles just set before you. Their opponents who are worthy of such a rank, if named could be counted on the fingers of one hand.

TABLE I.

No.	Surgeon.	Locality.	Antiseptics.
1	Mitchell Banks,	Liverpool,	Sublimate and carbolic spray.
2	Whitehead,	Manchester,	Carbolic spray.
3	Macewen,	Glasgow,	Strict antisepsis.
4	Ogston,	Aberdeen,	Carbolic acid.
5	Keith,	Edinburgh,	Carbolic acid, except in spray.
6	Annandale,	Edinburgh,	Sublimate dressings.
7	Péan,	Paris,	" "
8	Lücke,	Strassburg,	" "
9	Kœberlé,	Strassburg,	Alcohol flame, carbolic acid, and boiled artificial sponges
10	Czerny,	Heidelberg,	Sublimate.
11	König,	Göttingen,	Sublimate and iodoform.
12	Volkmann,	Halle,	" " "
13	Gussenbauer,	Prague,	Sublimate.
14	Nussbaum,	Munich,	"
15	Winkel,	Munich,	"
16	Krönlein,	Zurich,	"
17	Kocher,	Berne,	"
18	Billroth,	Vienna,	Sublimate and iodoform.
19	Albert,	Vienna,	" " "
20	Julliard,	Geneva,	Carbolic acid.
21	Terrier,	Paris,	Sublimate and carbolic acid.
22	Championnière,	Paris,	" " " "
23	Bergmann,	Berlin,	Heat, sublimate, and iodoform.
24	Hahn,	Berlin,	Sublimate and iodoform.
25	Esmarch,	Kiel,	" " "
26	Schede,	Hamburg,	Sublimate.

A considerable variety of antiseptics are in vogue, and every little while a new one appears which is claimed to possess advantages over its predecessors, but the trials made in the operating-room and in the laboratory show, so far, that carbolic acid and corrosive sublimate

[1] Kümmel: Die Kontakt- und Luft-infection in der praktischen Chirurgie, Centralbl. f. Chirurg., 1885. Beilage 326.

[2] From Senn, Four Months Among the Surgeons of Europe, and other sources.

lead, like Ben Adhem's name, all the rest. I have taken pains heretofore to present to you a list of germicides taken from the works of Koch and Sternberg, to show you their relative values, but to-day I can give you, through the kindness of Dr. Weeks[1], of this city, who has kindly placed his advanced proofs at my service, another list, which embraces not only his own bacteriological investigations, but those of other observers. These you will see in Table II.

TABLE II.

(From the investigations of Dr. Weeks, of New York.)

Antiseptic.	Strength.	Duration of exposure to destroy vitality of germs.
1. Corrosive sublimate,	1 to 500	10 seconds.
" "	1 to 1000	45 "
" "	1 to 2000	1⅓ minutes.
" "	1 to 5000	3 "
" "	1 to 10,000	5 "
" "	1 to 20,000	12–15 "
2. Biniodide of mercury (very insoluble).	1 to 40,000	4 days.
3. Nitrate of silver,	1 to 10	4 seconds.
" "	1 to 50	8 "
" "	1 to 100	12 "
" "	1 to 500	1½ minutes.
4. Carbolic acid,	1 to 20	15 seconds
" "	1 to 40	30–60 "
" "	1 to 60	4 minutes.
5. Alcohol,	No effect on dried germs; very powerful when active in moistened condition.	
"	absolute alcohol,	4–12 seconds.
"	95 per ct. "	20–30 "
"	66 per ct. "	10–15 minutes.
6. Salicylic acid, (makes a stable solution).	600 parts of water.	
" "	1 to 600	1 minute.
" "	1 to 1000	4–5 "
7. Permanganate of potash, makes an unstable solution in 16 parts water.		
" "	1 to 50	20 seconds.
" "	1 to 100	1 minute.
" "	1 to 200	5 "
8. Chlorine water, very unstable, best when fresh,		1½ min.
9. Hydrogen bromide, " " " "		1–1½ "
10. Boric acid had no germicidal action whatever; germs remained unaffected for 10 days.		
11. Iodine to saturation in water did not affect germs after 48 hours' exposure.		
12. Chloride of zinc, 1 to 20 in water, had no effect.		
13. Oil of turpentine, " " "		
14. Thymol, " " "		
15. Eucalyptol, " " "		
16. Ointments of 10 per cent. of iodoform and of iodol of the same strength had no effect after 36 hours' exposure.		
17. Iodoform in powder only retarded development of germs after 12 hours' exposure.		
18. Iodol, bismuth subnitrate, and boric acid in powder exerted no effect.		
19. Boiling water, and in fact heat from 165.2° to 212° F., destroyed germ life on contact.		

Whoever among you that has kept abreast with the current literature will not be surprised at two things met with in the list. First, that the fact taught us several years since by Koch, has been confirmed by Dr. Weeks, that oily solutions or mixtures, of the various antiseptics have no value other than is slowly exerted by the fatty matters themselves; and, second, that iodoform, concerning the power of which in germs much has lately been written, exerts its germicide action but slowly. On this point of the value of iodoform in controlling inflammation—ordinary and tuberculous—I may say that the clinical experience of surgeons is in favor of its usefulness, and is decidedly opposed to the laboratory deductions. The discussion of this subject, however, has developed the fact that this substance in dry powder often contains germs, and that it works best when acted upon and changed by wound secretions. Practically, it is nearly always used here in a dampened condition in conjunction with the moist sublimate gauze, and in this combination it is leaned on heavily as a supporter of antisepsis.

To the list of chemical germicides must be added one other which possesses advantages beyond these in safety, cheapness, and accessibility. I refer to the action of heat. A temperature of boiling water will destroy the life of surgical germs, though in some varieties a greater heat is necessary to kill the life of the more resisting spores. Freshly boiled water cooled in covered vessels or by the admixture of water boiled and cooled the same day is coming here more and more into use for the purposes of washing or irrigating wounds, and in Germany the dressings are also sterilized before each operation by heat and used without any medicated impregnation.

If you watch the preparations and the antiseptic technique of this amputation of the forearm, which will be now performed by the House Surgeon, you will gather the main points of the antiseptic treatment of a wound. You will notice first that the instruments, which are either made, handles and all, of one piece of steel, or that the handles are of hard rubber baked on so as to leave no crevices,[1] are, with the needles, scrubbed with green soft soap and water and placed in boiling water for ten minutes, and then into carbolic acid water, 1 part to 20, for at least the same time. The ordinary yellow soap contains germs in abundance according to Eiselberg, but it can be used if previously soaked for half an hour in 1 : 1000 sublimate solution. All the sponges which have been cleansed by Keller's[2] method, or by washing

[1] This article is entitled "The Antiseptic Value of the Topical Remedies used in Ophthalmology, and the Methods of Sterilizing Instruments; Tested Bacteriologically"—and was read before the Section on Ophthalmology and Otology at the Academy of Medicine, October 17, 1887, by Dr. John E. Weeks, and will appear in ull in the next number of The Archives of Ophthalmology.

[1] Some excellent ones are now made in Germany by heavily electroplating over wooden handles. This obviates the too great weight of metal handles.

[2] In this method the new sponges, after having been rid of the sand by shaking and beating them, are thoroughly washed in warm—not hot—water, for if hot water is used it deteriorates the quality of the sponge substance, and tends to fix the drift within its meshes. This is particularly so if the sponges have already been used at an operation. The sponge is then placed in a 1 to 1000 solution of permanganate of potash for twenty-four hours. If the permanganate is found to be losing its beautiful pink color, a little more may be added. At the end of this time the permanganate of potash is washed out with warm water. The sponges are now bleached by immersion in a solution composed of one part of sulphite of sodium to one hundred parts of water, to which has been added a one-fifth part of a watery solution of hydrochloric or oxalic acid of a strength of 8 parts to 100. They are stirred up with a stick for a few minutes, until they whiten; if left longer they will become friable. Then they are washed out with water again, and left for some time in running water. The sponges

simply with green (or whale oil) soft soap and water, are taken from the jars, where they have been soaking several days in a 1:5000 sublimate solution, and squeezed out in a similar fresh solution placed in glass basins.

In the meanwhile the hand and forearm, after the Esmarch bandage has been put on, have been scrubbed diligently with soft soap and a brush, which attention has already been given by the operator to his own hands, and finally, after this has been done the parts are washed off with 1:1000 sublimate solution, or with alcohol, and in particular cases with both fluids. The operator then dips his hands in the basin containing a 1:1000 sublimate solution, and taking a knife handed him by a similarly prepared assistant, he begins cutting.

Discard for the present the steps peculiar to the amputation, and fasten your attention only on the antiseptic details. During the operation, from time to time, a 1:5000 sublimate solution (for stronger ones prove at times poisonous to the system) is allowed to trickle over the cut surface from a douche bottle, or from a sponge, and this is always thoroughly done before the wound is sutured. All the vessels are tied with catgut, prepared either by immersion for 12 to 48 hours in a watery sublimate solution of 1:1000, or in oil of juniper for 10 days, according to Cavel, and then kept in 95 per cent. alcohol until used. The drainage is effected by rubber or glass tubing, horsehair, or bundles of catgut, of relative value in the order named. These are also kept ready for use in sublimate solutions of the same strength. Neuber's bone drains have fallen into disuse with us; they not only drain poorly at times, but also render infection of the wound possible from their animal structure.[1] The sutures are likewise of catgut, a little heavier than that used for ligatures, and they are introduced with straight Hagedorn needles, which are supplied with a large eye, and admit, therefore, the ready carrying of catgut, and withal they are very sharp, penetrating the skin most readily. I prefer to employ now, and where I specially want primary union, a wrinkle of Kümmel's, though perhaps it is a refinement. I mean the loosely felted spun glass, which, duly sublimated, is laid on the sutured wound, and over this is put the absorbent dressing.

Observe the word *absorbent*—we are striving for a dressing that will not only prevent decomposition of the discharges, but one, also, that will promote dryness of the wound; for it has been found that germs require for their increase from fifty to seventy per cent. of moisture. The old Lister dressing, shut in with its rubber or Mackintosh covering, was an error in this respect. Now with the capillarity of my spun glass at work, all discharges are carried into my mass of mussed up sublimated gauze, which has been dusted on the surface next the wound with iodoform, and which is covered with a number of such clumps of gauze, and finally with a thick layer of absorbent (not borated, for this has no value) cotton, and the whole secured by a wet sublimated gauze bandage. If the wound is a large one, or one likely to have much secretion, or one where a redressing is to be postponed for a long time, small bags of sublimated peat (which is preferred by me to most of the other absorbents of like nature, such as wood-wool, moss, etc.) are placed next the wound, first duly dusted with iodoform.

A card has just been sent down to me by one of the students, asking why I do not use iodoform gauze over my wounds. I am glad the question has been put. My omission to use this kind of gauze is intentional. I found, several years since, that the iodoform gauze made then and now with some sticky substance impregnated in it, to hold in its meshes the iodoform, is apt to dam up the secretions from the wound and prevent the same from being freely sucked up by my absorbent material beyond; and though some improvement has been made in the gauze (of which that made from the rather expensive ethereal solutions is the best), yet, I now only use this form of gauze in open wounds, or where I wish to pack cavities, or to arrest hemorrhage by pressure, etc.

Now let me tell you how the sublimated gauze is made. The slight aniline color you see that it has, is given to it simply to distinguish it from the unimpregnated kind. You understand you may, at a pinch, use almost any loosely woven cotton or linen material, mosquito-netting or old napkins for instance. The gauze we have is made specially for the hospital, and is, indeed, nothing but cheese-cloth, which you can render absorbent by boiling in water to which a slight amount of soda is added to remove its greasiness, and then drying. You can also buy it in a better form of Am Ende,[1] who has devoted a good deal of time to the careful making of antiseptic preparations. But remember not to purchase the impregnated gauze, for unless it is carefully kept in a damp condition, and properly wrapped up in an impermeable wrapper such as rubber or gutta-percha tissue, or put in an air-tight glass jar, the bichloride will soon become changed into the comparatively inert calomel. In fact, even in quite freshly made but dry gauze, a large quantity of calomel will soon be found, and this and the remaining bichloride can perceptibly be shaken out of it; also, germs find a lodgement in the dry gauze. This will be alluded to in a few moments. By chemical tests I have found that well-preserved damp gauze had not appreciably changed its strength one month after its manufacture.

are afterward put into a carbolic acid solution, 1 to 20, or in a solution of 1 to 1000 of the bichloride of mercury, and kept there until used.

Sponges so prepared, such as we use at this hospital, cost but about one cent and a half each; and at that price they may be thrown away after use at an operation. This is my custom in private practice; at the hospital it is the rule that, if the operation is one upon the rectum, the vagina, or other parts where contamination is likely to take place, the sponges used are afterward destroyed; in amputations and other cleanly operations upon the otherwise healthy subject, the sponges are cleansed for subsequent use. In all abdominal operations new sponges are employed. The sponges that are to be again used are washed thoroughly in running water, and afterward kept for some some hours in a weak carbonate of soda solution, to dissolve out the fibrin, etc., and then placed in the antiseptic solution as before.

The simpler plan, advocated by Kümmel, of only washing the sponges with green soft soap and water, and then placing them in a 1 to 20 carbolic solution, or in 1:1000 sublimate solution, has been followed by me for too short a time to speak positively as to its merits.

[1] So much does Kocher, of Berne, object to this influence that he has, according to latest reports, discarded catgut, and now uses only silk, freshly boiled.

[1] No. 1300 Broadway, New York.

The formula for making the sublimate gauze is this: One part of sublimate and two parts of common salt are dissolved in five hundred parts of water; the gauze is soaked in this for an hour, wrung out, and partially dried in a clean room. That is to say, it should not be made or handled in a hospital ward or sick room, and it should be kept in a moist condition in glass jars. The chloride of sodium is intended to prevent the conversion of the sublimate into calomel. Chloride of ammonium will also accomplish this. A small quantity of glycerine is of service in like manner, especially when the gauze is likely to be kept some little time. Here, however, gauze is used so rapidly that this precaution is not followed. This gauze has been made of this increased strength by experience which is supported by the recent tests of Schlange, to be presented in a few moments.

For making iodoform gauze I find the following gives the best results, and it can be made very rapidly, as you will see, for the nurse will make some while I describe the process: 3 drachms of powdered iodoform are mixed up with 6 ounces of ordinary Castile soapsuds, using a 1 to 5000 solution instead of ordinary water; this makes a temporary emulsion, which is poured over 3 parts by weight of absorbent gauze, which is equal to 2½ yards, and evenly distributed through it by a short rubbing process. This will make a 10 per cent. gauze, and the soap will hold the iodoform satisfactorily in the meshes of the gauze. For a 25 per cent. gauze the iodoform needs to be increased to 7 drachms, the other proportions remaining the same.

When we wish to use iodoform in deep cavities, where frequent redressing is not desirable, as, for instance, after extirpation of the rectum or of the tongue, an iodoform gauze of a more adherent nature is often employed. This is prepared by pouring over 5 yards of absorbent gauze a mixture of

Iodoform	ʒiiiss.
Resin	ʒiss.
Alcohol	ʒiv.
Glycerin	ʒvj.

I have said nothing so far concerning the spray; you will have already noticed that we do not use it often. It is of value, as Cheyne has proven, but irrigation so satisfactorily destroys the germs, that the spray is only now employed where irrigation is impracticable; as, for instance, in certain operations on the brain, or in the large cavities of the chest and abdomen, and in some of the operations on the joints; in all these I frequently use the spray.

Every conscientious surgeon will admit that his use of antiseptics is not always certain in controlling inflammation and suppuration. Theoretically this should be so. The gross errors we have learned, it is true, to avoid. With a well-trained staff of assistants, a surgeon versed in antiseptic work will have a success which may be claimed as a marvellous one; but even with such a person untoward results are likely to happen at any time. These accidents are not always easy of explanation, but the investigations of our German colleagues have shown us in what direction we should carry our researches in explaining these mishaps, which, were it not for the resistance of the tissues to germ influence, would be even more numerous than they are.

Several years ago I was led to point out the errors of the Lister dressing,[1] which from the volatility of the carbolic acid often became unreliable, and by a faulty method of preparing catgut often did damage. Since then Kümmel, of Hamburg, has also taught us how common infection of a wound is by the contact of sponges and instruments used, and by the hands of the surgeon and his assistants. He has, moreover, showed us how to avoid these errors by the procedures enumerated in a preceding page.

A more recent observer, Schlange,[2] of Berlin, has exposed to us that defects of no mean order are to be met with in our supposed aseptic sublimate dressings. He has proven after examination that all antiseptic bandage materials made by manufacturers contain without exception more or less microörganisms which are capable of liquefying gelatine—*i. e.* producing putrefaction; but that recently prepared moist gauze or gauze that has been rendered sterile by heat or boiling water can be considered free from germs; one might, therefore, consider that our use of the moist sublimate gauze can still be relied upon in spite of its occasionally irritating or blistering the surrounding skin.

The possibility of another error must also be kept in mind. It is that the value of the protection of the sublimate gauze where blood or other secretions are absorbed by it, is much impaired by the conversion of the sublimate into the inert albuminate of mercury. Schlange mixed equal parts of a 1:2000 sublimate solution and blood together and introduced in this mixture different bacterial germs, which rapidly went on to full development unhindered by the sublimate. Similar germs introduced into a solution of sublimate of the same strength without the blood admixture were rapidly destroyed. Moreover, as previously spoken of, the drier the wound can be kept the less will be the chance for germs to develop.

All these facts show us the weak points of the sublimate dressing, and the reasons why a recently boiled water and a dressing recently heated to the same degree of temperature offer ideal materials. It is perhaps a little more troublesome to make a dressing in this way than it would be to resort to the easier handled sublimate solutions and dressings, but a little ingenuity, in the possession of all of us, will obviate these difficulties. I shall certainly attempt to overcome them, and hope before the close of the winter to inform you of the value and of the simplest forms of preparing, and, what is more important, keeping the heated dressings.

ORIGINAL ARTICLES.

A CASE OF SUBDIAPHRAGMATIC ABSCESS.[3]

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THE following case came under my observation some months ago, and is of interest because of its comparative rareness.

[1] "The Weak Points in a Lister Dressing," etc. THE MEDICAL NEWS, May 5, 1883.

[2] Ueber Sterile Verbandstoffe, 1887, xvi. Congr. der deutsch. Gesellsch. für Chir. Berlin.

[3] Read before the Montreal Medico-Chirurgical Society, December 9, 1887.

John R., aged sixty, carter, was admitted into the medical wards of the Montreal General Hospital under Dr. George Wilkins on April 14, 1887, complaining of a swelling in his right side.

History: More than a year before he had, after exposure, become thoroughly chilled and for a day or two was out of sorts; he then suffered from very acute pain in the epigastric region. He was confined to bed for less than a week, and then went about his work as usual, but never felt quite well. In two weeks the severe pain returned and was felt most in the right hypochondriac region. The pain was increased by inspiration and movement of the body. He also states that for a short time his skin was of a yellow color. He remained in bed a week when the pain left, and he got up and went about, but was unable to work.

In the middle of April, 1886, he had another severe attack of pain in the right hypochondriac region, and this time he remained in bed until the middle of July, 1886. He now first noticed a swelling in his right side immediately below the costal margin. He has never been confined to his bed since July, 1886, but has always suffered from slight pain in the right side—the swelling gradually increased. A couple of weeks ago, the swelling causing discomfort and rapidly increasing in size, he entered the General Hospital. During the whole period of his illness he never had rigors or marked shortness of breath.

The following was the condition of the patient on his admission to the hospital. I am indebted to Dr. Wilkins for allowing me to make use of this note from his case book.

"Well developed man, not emaciated or anæmic, skin cool and moist, no hectic, no jaundice, temp. 98.5°. Respirations and pulse normal. Bowels regular. Appetite good; sleeps well, but always lies on his right side. No history of dysentery or diarrhœa. In the right hypochondriac region is a large, painless, smooth, elastic, fluctuating swelling extending below the costal margin to within half an inch of the umbilicus, and laterally to near the median line; the lower border of the swelling is convex and yields to pressure; right side of the chest, from the third rib downward, is expanded; the intercostal spaces widened and bulging. Percussion note dull in front, and in the axillary line from the third rib downward; posteriorly it is dull from the middle of the scapula. Breath sounds are completely absent over this area. In upper part of right lung breathing is feeble and somewhat tubular in character. Left lung and heart normal. Urine healthy. It is not possible to make out area of liver dulness, or to feel the lower border of that organ."

On the 18th of April, Dr. Wilkins aspirated the fluctuating swelling in its most convex portion below the ribs, and drew off twenty-five ounces of creamy, sweet-smelling pus. This was examined microscopically, but no hooklets of echinococci were found; the fluid consisted of pus, blood, and some necrotic tissue. After the aspiration the patient felt much more comfortable, could sleep on his right side, and had no pain or nausea. He was transferred to the surgical ward and placed under my care.

On the 23d of April, having placed the patient under ether, I made a vertical incision in a line with the nipple, some four inches long, commencing immediately below the costal margin on the right side. This incision was over the most prominent part of the tumor. The parts were carefully incised, and when the wall of the abscess was reached it was found to be adherent to the abdominal parietes and to consist of a thick mass of inflammatory tissue. When the abscess cavity was opened there was a great gush of pus, and afterward each inspiration caused the contained fluid to flow out more freely. To facilitate the exit of the pus a large rubber tube was introduced so as to act as a siphon—in this way some eighty ounces of pus were drawn off.

The patient's condition now became alarming, his breathing became shallow, pulse hardly perceptible, and extremities cold. So the further evacuation of the pus was discontinued (although, apparently, as much remained behind as had been taken away) and restoratives applied. On exploring the cavity, the diaphragm could be felt above, reaching as high as the third intercostal space in front, and a probe introduced through the wound could be felt behind, between the fourth and fifth ribs; below, a thick mass of inflammatory tissue separated the abscess from the cavity of the abdomen. The liver could not be felt or seen, and there was no liver substance in connection with the abscess. Owing to the collapsed condition of the patient, the wound was rapidly sutured, a large drain introduced, a thick sublimated jute dressing applied, and the patient put to bed.

Under the influence of heat and stimulants he soon rallied. During the next three days there was a large discharge of pus and the dressings had to be changed twice daily. The temperature never rose above 99° F., the patient rapidly improved, and the abscess cavity, in a remarkably short time, was reduced to a very small size.

By the first of June the discharge of pus had almost ceased, the abdominal organs had resumed their normal position and the area of liver dulness was normal in extent. The breath sounds over right lung still continued feeble. The patient rapidly regained flesh and strength, and when discharged in August there was a narrow sinus, some four inches deep, which discharged a thin sero-pus. For the last three months patient has been at work and says he feels perfectly well. The sinus has, however, not yet completely closed. Breath sounds can be heard over the whole of the right lung, but at the lower part both in front and behind still rather feeble.

REMARKS.—When first seen this was thought to be a case of either liver abscess or echinococcus disease. The absence of constitutional symptoms, the slow growth of the tumor, its smoothness, elasticity, and painlessness pointed to echinococcus disease, whilst the history of a chill, frequent attacks of severe pain, the jaundice in early stages, made one think it possible that it might be a case of liver abscess. The absence of a history of rigors and sweatings was a remarkable feature of the case.

The man, although a fairly intelligent Irishman, was not very observant, and did not give a very

connected history of his case, so that the facts were difficult to get at, and when obtained did not contain the whole truth. However, the aspiration showed the case to be one of abscess, and microscopic examination failed to disclose any evidence of echinococcus.

From the fact that when the tumor was opened no trace of the liver could be found, I have not the least doubt in my mind that the case was one of abscess which had originated between the diaphragm and the liver, and that the latter organ had been pushed downward and backward by the gradual collection of such a large amount of fluid.

I had intended making a counter-opening posteriorly to facilitate drainage, but the collapsed condition of the patient after the evacuation of so large an amount of pus warned me to complete the operation as soon as possible, and to get him back to bed. The result was quite as satisfactory as it would have been had a posterior opening been made. When abscesses are above the diaphragm a dependent opening is much more important than when they are below that structure. In the latter case the pressure of the abdominal walls on the contents of the abdomen always tends to obliterate any cavity that may exist. In this case it was remarkable how soon such an enormous cavity disappeared.

THE GERMICIDE POWER OF SULPHUR DIOXIDE.

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AT the suggestion of Dr. W. M. Smith, Health Officer of the Port of New York, the writer undertook a number of experiments during the summer of 1885 to determine the disinfecting power of anhydrous sulphurous acid as used by the so-called "vacuum process." For various reasons the experiments were not reported at that time, but as the gas was then used for disinfection under quite new conditions, it has seemed advisable now to report the results as then obtained.

The vacuum process consists in principle in the exhaustion of the air from an air-tight receiver, in which the goods or materials to be disinfected have been placed, and in the subsequent introduction of the gas (as derived from liquid sulphurous acid) in pure form and under pressure. In the employment of the gas in this manner, as compared with its use in any previous experiments, two new factors come into action. The first consists in the formation of a vacuum and the consequent withdrawal of the air from the minutest pores of the materials to be disinfected, thus insuring penetration of the gas to every particle of the material; and the second, in its use in a volume of 100 per cent., and at any required pressure, varying from twenty to one hundred pounds to the square inch. The importance of these new features will be readily perceived when we consider the methods that have been previously employed in such experiments.

In the usual methods of disinfection with the gas, as well as in the various experiments which have been made from time to time to determine its disinfection power (with the single exception of some experiments made by Dr. Sternberg, in which the gas was used in as high as 20 per cent. volume), the gas has been generated by burning a certain amount of sulphur to each cubic foot of space. In many instances this has been done in rooms which could not be tightly closed, and where the escape of the gas was necessarily very large.

Under these conditions the free sulphur combines in the process of combustion with two parts of oxygen from the air to form SO_2. It should be remembered, however, that combustion ceases from lack of oxygen when the oxygen of the air has been somewhat reduced, so that under the best conditions only four or five per cent. in volume of the gas is available. But probably not so much as this is ordinarily available, because SO_2 is much heavier than atmospheric air, the diffusion is not very rapid, and in the upper portions of the rooms in which the experiments have been conducted (as has been shown experimentally) the strata of air contain still less than in the lower. The diffusion of the gases would rectify this, however, if the exposure continued for a longer period of time. Then further, it was apparently shown in Sternberg's experiments that under these conditions the penetrating power of the gas was quite slight, even when the exposure continued for many hours; for instance, when the gas was effectual in destroying the life of certain microorganisms exposed to its full action, it was ineffectual under exactly the same conditions, if the rags previously soaked in culture fluids were slightly protected from its direct action, as when placed, for example, in the pocket of a coat hanging in the room.

The conditions in the above experiments are essentially different from those obtaining in the present investigations. In these a vacuum is first produced, thus absolutely insuring penetration of the gas and its full action upon every part of the materials to be disinfected, and then the gas in 100 per cent. in volume is introduced under high pressure.

Considering the results previously obtained in biological experiments with SO_2, at first thought it would seem probable that even better results might have been predicted under these conditions than were obtained.

In all the tests about to be described, the gas as used was derived from the liquid anhydrous sulphurous acid. The experiments were primarily undertaken to determine the practicability and efficiency of the "vacuum process" for the disinfection of rags in bale, and they will be divided into two classes, viz.:

1st. Those made in the Carnegie Laboratory in which infected rags were exposed to the gas in much less than 100 volume per cent. and without pressure.

2d. Those made at the Pollock Chemical Company's Works, in which rags similarly treated were introduced into the centre of a tightly packed bale of rags and the bale then subjected to the process, as described in detail below.

The action upon different microörganisms was tested by exposing to the gas rags which, after

sterilization, had been soaked in cultures of the various germs. After exposure, culture tubes were inoculated with these rags. Control cultures were also made in each case by inoculating similar tubes from the same rags after infection, and previous to exposure to the gas. Some of the tests were made from the infected rags which had been exposed in a moist condition to the gas, and others after they had been dried at a low temperature. Tubes of sterilized beef peptone gelatine were, for the most part, used for the inoculations.

The cultures were made in two ways: the so-called "rag cultures" by simply introducing after exposure a small piece of the previously infected rags into a tube of prepared gelatine; and the "puncture cultures" by first soaking these rags in sterilized distilled water, and then inoculating gelatine tubes with a minute drop of this water by means of a platinum wire.

In the following experiments the mere presence of bacterial growth in cultures made after exposure is not to be considered of so much importance, unless this growth proved to be due to the development of the microörganisms that were exposed to the action of the gas; for in the methods used it was impossible absolutely to exclude all foreign microörganisms, and the cultures made after exposure were used rather as provisional tests in which the proof of the destruction of the organism exposed was complete, if no growth of any kind occurred.

The result was the more satisfactory if this was accomplished when impure cultures were used. But, on the other hand, if developments of any kind did occur, plate cultures were made and all germs present were isolated, and thus it was determined whether the cultured germs or the impurities were the source of the bacterial growth. The cultures after exposure were made in the open air of the laboratory, by transferring the rags to the culture tubes. In cases where moist rags were exposed, it was found necessary to neutralize with carbonate of soda the acidity produced by the SO_2 in solution on the moist rags, or the culture fluids were rendered acid by this and were thus made unfit for use as culture media. Owing to this fact, and because fluids are rendered antiseptic by the solution of the gas in them in small quantity, the method used in these experiments seemed to be the most practicable one, although it is open to objections in some respects.

The first series of experiments, namely, those made in the Carnegie Laboratory, were designed to determine the efficiency of the gas as a disinfectant when used in a large volume per cent.

The second series—*i. e.*, those made with the bales of rags—must show both the penetrating power of the gas and its disinfecting value when present in a pure atmosphere under pressure.

In the first series of experiments the rags were exposed to the gas in a three gallon glass jar which could be rendered air-tight. The rags were suspended in this jar, and then the liquid SO_2 was either thrown directly into it from a siphon, or was drawn into a graduate which was then placed in the jar. It was always the design to use as large an amount of the SO_2 as possible. The amount varied in the different experiments, from half a fluid-ounce to two and a quarter fluid-ounces. In some instances the liquid SO_2 had not entirely volatilized at the end of the exposure.

In the experiments first made, no especial care was taken to charge the rags with pure cultures of microörganisms before exposure to SO_2, or to prevent the access of spore-bearing or other foreign germs. It was deemed a better proof of the disinfecting power of SO_2 to destroy the cholera spirillum, for instance, when in impure cultures with other germs present, than to destroy this germ when alone, and it was thought possible that it might destroy all forms of organisms. It was due to such impurities, probably, that colonies of spore-forming bacteria developed in some of the tubes inoculated with the rags that had been exposed to the gas.

No reference will be made to the control cultures in reporting the results of the following experiments, inasmuch as development occurred in all of nearly one hundred control cultures, with the exception of three or four wire cultures, in which non-development was probably due to the acid reaction of the gelatine.

First series of experiments made at the Carnegie Laboratory in the manner just described:

EXPERIMENT I.—Cultures of the comma-bacillus of Finkler and Prior were used. Moist rags exposed. Puncture cultures made in the manner described above. The time of exposure to the gas was twenty minutes.

Result: No development occurred in any of the cultures.

EXPERIMENT II.—Cultures of the comma-bacillus of Finkler and Prior were used. Moist rags exposed. Plate cultures were made from the water infected as above. Time of exposure twenty-five minutes.

Result: No development occurred in the plates.

EXPERIMENT III.—An impure culture of the cholera spirillum was used. Two rag cultures and two puncture cultures were made. Time of exposure was about twelve minutes. Moist rags exposed.

Result: No development of any kind in either of the puncture cultures, or in one of the rag cultures, but in the second rag culture a growth appeared which proved to be a thick spore-forming bacillus. This bacillus was used in one of the subsequent experiments, series No. 2. There was no development of the cholera spirillum in this culture.

EXPERIMENT IV.—Cultures of cholera spirillum and the comma-bacillus of Finkler and Prior were used. Moist rags exposed. Two rag cultures were made from each of the germs exposed. Time of exposure about thirty minutes.

Result: No development occurred in any of the tubes.

EXPERIMENT V.—Cultures of cholera spirillum and of a micrococcus obtained in pure culture from an erysipelatous bleb (which, for convenience, will be called streptococcus erysipelatus in the following experiments, when it is used). Time of exposure twenty-five minutes. Three rag cultures were made of each of the germs.

Result: No development in any of the tubes of either germ.

EXPERIMENT VI.—Cultures of the comma-bacillus of Finkler and Prior, and impure cultures of streptococcus erysipelatus were used. Rag cultures made. Time of exposure twenty-five minutes. Moist rags exposed.

Result: No development in any of the tubes of either germ.

EXPERIMENT VII.—Old plate cultures of a bacterium found in green pus were exposed. These plates contained many colonies of large size of this germ and also numerous colonies of air germs. Wire cultures were made, whole colonies of the germs being introduced into the culture media. Length of exposure about thirty minutes.

Result: No development in any of the cultures.

EXPERIMENT VIII.—Threads were dipped into cultures of streptococcus erysipelatus and then dried. Cultures were made upon agar-agar and in gelatine from these threads after they had been exposed. Length of the exposure about forty-five minutes.

Result: No development in any of the cultures.

EXPERIMENT IX.—Rags soaked in decomposing infusion of hay five days old, which contained many spores. Rags then exposed to the gas for forty-five minutes, and at the same time half a glass of the infusion was placed in the vessel used for the exposure.

Result: Puncture cultures made from the infusion, before exposure, showed bacterial growth after twenty-four hours; those made from the same infusion, after exposure, did not show any development until the third or fourth day. Cultures made from the rags that had been exposed did not show any development on the eighth day. This non-development in the rag cultures was apparently due to the acidifying of the gelatine by the rags introduced, as will be seen later. These cultures were not neutralized. Decomposition in the infusion exposed was arrested, although the development occurring in the cultures made from this showed that the spores were not destroyed, and the arrest of the decomposition was probably due to the presence of sulphurous acid in solution in the infusion.

In other experiments which were made with decomposing infusion of hay, development appeared in the cultures made from rags after exposure in dried condition for eighteen hours, and in moist condition for three hours, although when the cultures were not neutralized after the exposure of the rags in moist condition no development occurred.

EXPERIMENT X.—Cultures of mycoderma rosa that had been dried for more than three months on slices of potato were exposed to the action of the gas for forty-five minutes. Cultures were made after exposure on agar agar and on potato.

Result: Development occurred in all the cultures on the second day, showing that these germs were not destroyed by the gas.

EXPERIMENT XI.—Cultures of staphylococcus pyogenes aureus on agar-agar were exposed for forty-five minutes, and then other tubes were inoculated from these cultures.

Result: No development occurred.

The method of exposure of the rags in the second series of experiments was as follows: the infected rags, either moist or after being previously dried, were introduced at the laboratory into sterilized glass tubes which were open at both ends. These tubes were then plugged with sterilized cotton and the ends covered outside by filter paper. In this condition they were taken to the Pollock Chemical Company's Works, where the experiments were made. The following method was employed to show the penetrating power of the gas. A sharp-pointed hollow drill, with a tight screw-cap on one end, and perforated by a dozen or more small holes, just at its middle, was driven into the centre of a bale of rags. Then the glass tubes containing the infected rags were introduced into its lumen, and the cap was set in white lead to insure its being air-tight. Now the only manner for the gas to enter the interior of the tube was for it to pass to the centre of the bale and enter by the perforations in the tube situated there. Aside from the *a priori* reasoning which would indicate that the gas must penetrate every pore of the material after the production of a vacuum, it seemed certain that if the gas reached the centre of the bale, entered the interior of the drill, and then passed through the cotton plugs to the infected rags in the tubes, that it must reach every part of the bale. After the drill had been thus introduced, filled with tubes and closed, the bale of rags was placed in an air-tight cylinder, a vacuum of 28 or 30 inches was produced and the gas was then introduced in pure form under pressure. The amount of vacuum, the pressure, and the duration of the exposure are noted in each of the experiments, and all were conducted in the same manner. After the exposure, the tubes containing the rags were returned to the laboratory without removal of the cotton plugs, and cultures were made from them, as described above.

Second series of experiments made at the Pollock Chemical Company's Works:

EXPERIMENT I.—Vacuum, 29 inches; pressure of gas, 35 pounds; exposure, 25 minutes. No spore-forming germs used. Cholera bacillus, streptococcus erysipelatus, and two tubes containing vaccine points exposed. Cultures neutralized after exposure. A number of inoculations were made from each of the kinds of germs exposed. Two tubes inoculated with the vaccine points exposed.

Result: No development occurred in any of the cultures. (The vaccine points were exposed with intention of using later for vaccination, and the culture tubes were inoculated with them simply as an experiment. A micrococcus in pure culture, however, did develop from quills not exposed and nothing developed after exposure.)

EXPERIMENT II.—Pollock Chemical Co. Works. Vacuum, 29 inches; pressure, 20 pounds; exposure, 20 minutes. After this pressure was reached, impure cultures, cholera spirillum, bacillus subtilis (spores) and spore-forming bacillus found in Exp. III., first series, were exposed. Puncture cultures and rag cultures were made of each. One-half the cultures were neutralized by a solution of carbonate of soda after the introduction of the rags.

Result: Bacillus subtilis. Development occurred in all the tubes on second or third day. Cholera spirillum. No development occurred in either of the

two puncture cultures. In three out of six rag cultures, development took place on the second or third day, but even on the ninth no liquefaction of the gelatine had taken place, showing absolutely that the growth was not due to the cholera spirillum, as this liquefies gelatine by its growth.

Microscopical examination, moreover, showed that the growth in all three of the tubes was due to a large rod bacillus.

Spore-forming bacillus (third germ exposed). No growth appeared in the puncture cultures, but development occurred on second or third day in all the rag cultures which had been neutralized. In those remaining acid no development took place.

EXPERIMENT III.—The first public experiment was made on August 26, 1885, in the presence of Dr. J. S. Billings, of the U. S. Army; Dr. W. M. Smith, Health Officer of the Port of New York; Dr. Janeway, and Prof. Chandler; Dr. Taylor, of the New York Board of Health; Dr. Raymond, Health Commissioner of Brooklyn; two representatives of the Boston Board of Health, and numerous others. The bale of rags used was a large one, but had been used in previous experiments, and was not very tightly packed. Seven tubes were employed which contained rags infected with the following germs: two prepared from cultures of the cholera spirillum, rags moist in both; one containing rags soaked in a decomposing infusion of hay, and then dried; two prepared from cultures of streptococcus erysipelatus, in one of which the rags were dry and in one moist; two from cultures of the staphylococcus pyogenes aureus, in one of which the rags were dry, and in the other moist, and one from bacillus subtilis without spores, rags dry. The vacuum obtained was twenty-nine inches, pressure of gas twenty-five pounds, and the time of exposure thirty minutes. A number of control cultures were made from each of the germs employed, with the exception of bacillus subtilis, and in each case abundant development after twenty-four to seventy-two hours followed.

CULTURES MADE FROM RAGS EXPOSED TO SO_2 and RESULTS:

Four tubes were inoculated with rags containing the cholera spirillum and one puncture culture on agar-agar and one in gelatine were also made from these rags. Two cultures from dried rags containing staphylococcus pyogenes aureus and two from moist rags, and one puncture culture on agar-agar, and one in gelatine were made. The same cultures were made as of the previous germs from rags containing the streptococcus of erysipelas. Two cultures were also made from dried rags containing bacillus subtilis (no spores), thus making in all twenty cultures prepared from rags exposed.

No growth appeared in any of the tubes, with the exception of two tubes of the staphylococcus pyogenes aureus, in each of which after the lapse of six or seven days, half a dozen or more small colonies appeared which were transferred to other culture media, and which proved to be identical (so far as could be determined) with the germs exposed.

This is the first failure to destroy a micrococcus or bacillus (not forming spores) which has occurred in the numerous experiments.

The same germ under the same conditions was used in several experiments following, and no development occurred. In this experiment the development that appeared was very late; the colonies were few in number and of small size.

As the bale of rags used in this experiment was not very tightly packed, and there might be some question raised as to the sufficiency of the proof of the penetration of the gas, several more experiments were made in which bales especially prepared for the purpose were employed.

EXPERIMENT IV.—On September 25th, an experiment was made at the Pollock Chemical Co. Works, in which a bale of Chinese rags was used. This was very tightly packed but was of small size. Drs. W. M. Smith, Health Officer, and G. M. Sternberg, of the U. S. Army; Dr. Taylor, of the New York Health Board, and others were present. Cultures of the cholera spirillum on moist rags, the streptococcus of erysipelas on both moist and dry rags, staphylococcus pyogenes aureus on both moist and dry rags, and vaccine points were exposed. The vaccine points were furnished by Dr. Taylor, of the New York Health Board, and were returned to him after the exposure, to be tested by vaccination. The rags were prepared in the same manner as in the previous experiments, and cultures were made after the method previously described.

Conditions of the experiment: Vacuum 29 inches; pressure, 28 pounds; time of exposure (after the above pressure was obtained), 30 minutes.

The usual controls were made and development occurred in all on the second or third day. Inoculations were made from rags after exposure as follows: Four tubes from cholera spirillum by puncture, two tubes from streptococcus erysipelatus on dried rags, and the same from moist rags, and the same inoculations were made from the moist and dry rags containing the staphylococcus pyogenes aureus.

Result: No development occurred in any of the tubes. Dr. Taylor reported that no results were obtained from the vaccinations made with the vaccine points exposed in this and previous experiments. Successful vaccinations were obtained in each case from similar points that had not been exposed.

In order to show that the non-development in the rag cultures was not due to the presence of SO_2 introduced with the rags (as was suggested), when after the lapse of fourteen days, and no development had taken place in two rag cultures of erysipelas, and two of staphylococcus pyogenes aureus, they were inoculated from the corresponding control cultures. Marked growth was apparent after forty-eight hours. This was also done in two cases with cholera tubes in previous experiments, with the same results.

A number of other experiments were made at the Pollock Chemical Co. Works, and at the Carnegie Laboratory in the same manner, and the same general results were obtained.

As will be seen by reviewing the results obtained in the previously detailed experiments, the sulphur

dioxide has never failed to destroy the organisms exposed in these investigations, with the exception of spores of different forms of bacilli, of mycoderma rosa (when dried for months on potato), and on one occasion apparently the staphylococcus pyogenes aureus. There seems to be no question that it will not ordinarily destroy spores. The reason why it did not destroy mycoderma rosa, is probably because the gas could not penetrate the very dry hard potato. There seems to be no satisfactory explanation for the appearance of the staphylococcus pyogenes aureus on one occasion, excepting that the organism was not killed by the exposure. Under the same conditions in many other experiments, it was destroyed.

It will be noticed that the cholera spirillum was used as one of the organisms exposed in most of the experiments, and that the rags were more often in a moist than in a dry condition. There seemed to be an immediate danger, at the time the experiments were made, of the introduction of cholera by rags, and it was deemed of the greatest importance to determine the action of the gas on this organism. An interesting point came up in this connection. The cholera spirillum is destroyed by drying or by acids, so that if the rags are thoroughly dry, there is little danger certainly from the usual forms of the cholera spirillum, and if moist they are rendered acid, so that this would prevent the development if it did not destroy the germs.

In reviewing the results obtained in these experiments, the following conclusions seem to be justified.

1. Sulphurous acid gas in 100 volume per cent. under pressure, with an exposure of thirty minutes will ordinarily destroy most forms of microörganisms, either in dry or moist condition, with the exception of the spores of bacilli.

2. It will not destroy the permanent spores under any conditions, but retards their growth.

3. When used by the vacuum process, access to every part of the material to be disinfected is insured.

I wish to acknowledge my indebtedness to Dr. Frank Grauer, of the Carnegie Laboratory, for valuable assistance rendered in the conduct of these experiments.

A CASE OF COMPOUND, COMMINUTED, DEPRESSED FRACTURE OF THE SKULL;

EXTENSIVE LACERATION OF THE PERICRANIUM, WITH REPRODUCTION OF BONE.

BY JAMES STRATTON CARPENTER, A.M., M.D.,
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THE studies of Dr. William Macewen, of Glasgow, on "the osteogenic factors in the development and repair of bone," to which THE MEDICAL NEWS has recently called attention, are such as will readily excite clinical observation on the part of every one desirous of ascertaining, as far as may be possible, the truth or falsity of the results there attained.

And it is to be deemed worthy of congratulation, that the application of such crucial tests to this new theory, as clinical observations afford, are comparatively easy, and within the reach of the every-day practitioner—not restricted to the limits of the physiological laboratory.

It is, then, in this spirit, that I venture to present the history of the following case of a compound, comminuted, depressed fracture of the skull, desirous only of furnishing a single instance where there is satisfactory evidence of the reproduction of bone, independent of any periosteal contribution to that end.

CASE.—Charley F., aged eleven years, while in a fight with another boy, was struck on the head with the pointed edge of a half-brick thrown at him while his head was pressed to the ground, and permitting no rebound from the blow. Hemorrhage was very free, but there was only momentary loss of consciousness, and a half hour later the boy was brought to my office by his mother, having walked nearly three-quarters of a mile from his home. Examination showed an ugly, gaping wound over the right parietal eminence, into which the finger could be readily passed, detecting a depressed fracture at the seat of injury, there being a cone-shaped depression, the open, or convex surface being internal.

The next day, the patient under chloroform, assisted by Dr. John T. Carpenter, I dissected up the flap over the wound; the probe could be passed nearly one-half an inch below the external surface of the skull before it was arrested at the apex of the cone formed by the four depressed portions of bone, and as it was impossible to release the fragments, trephining was determined upon.

When the teeth of the trephine had nearly penetrated the vitreous table, the upper edge of one of the fragments was loosened by it, and I was enabled, with slight effort, to draw it free from the remaining ones; and, this vantage gained, all the fragments were detached without completing the trephining through the sound portion of bone.

The finger could now be passed through the perforation made by the missile, and the dura mater readily felt, as well as the pulsating of the cerebral vessels, so that there was nothing left behind as an irritating point, nor was there any doubt as to the entire removal of the bone at the seat of fracture.

The case pursued a very satisfactory course after the operation, temperature being normal, and the only suspicious symptoms, which prevailed for the first thirty-six hours, were overcome by free use of the mild chloride, bromide of potassium, and slight doses of morphia as required. The only dressing employed after suturing the flap was a cloth kept constantly wet with alcohol and water, and union occurred by "first intention" over the entire wound excepting at the seat of one suture which suppurated slightly, but gave no trouble.

REMARKS.—It was found, after removing the depressed fragments, that quite an extensive laceration of the pericranium had been effected by the blow, and that not enough was obtained to cover over the external table for an extent of nearly a square inch of surface, including the opening left by the depressed fragments. Then, too, the trephine had itself produced a circular fracture of the skull, and, as the diplöe had been cut through, it was feared that the severing of the blood supply from this

area might greatly increase the danger of necrosis, which, in accordance with the long-taught theory, might well be feared from such a loss of the pericranium, as before stated.

No such result, however, occurred, and at the last meeting of the Schuylkill County Medical Society, I presented the subject of this paper, that the members might see indubitable evidence of genuine bone production effected under such unfavorable conditions, and as contrary to all the previously entertained ideas on this subject. It was six months from the date of the boy's injury, and there was no doubt, on examination by the different members present, of the reproduction of bone in this case, the seat of fracture being firm, and in no wise different from other parts of the cranial surface, except as shown by the clean line of cicatricial tissue marking the flap that had been dissected at the time of the operation.

In order to give greater weight to the evidence here brought forward in favor of the general proposition regarding the osteogenic function of the periosteum in the development of bone, viz., "that the periosteum does not generate bone," let me state in conclusion, that at the time of the operation I had no knowledge of the recent publication of Dr. Macewen on the subject of bone reproduction; and that it was only after reading the editorial mention of the results arrived at by him in his investigations on this subject, that this case offered itself to my mind as affording unbiassed testimony in support of the new theory so recently proclaimed by him.

PHONATORY PNEUMATIC DISTENTION OR HERNIA OF THE LARYNGEAL SAC.

A CLINICAL NOTE.

BY J. SOLIS COHEN, M.D.,
OF PHILADELPHIA.

A CASE of stenosis of the larynx following evulsion of morbid growths after splitting the larynx externally came under my care a little more than a year ago. The stenosis was due to cicatricial adhesions, and to recurrences of growth about different portions of the glottis, chiefly in the posterior and interarytenoidal portion. By intralaryngeal procedures, including incision, evulsion, chemical and electric cauterization, and careful forcible distention, the most of it at the hands of my colleague, Professor A. W. Watson, of the Polyclinic, continued for a year or thereabouts, the stenosis has been wholly overcome. During a considerable portion of this period phonation took place by use of the ventricular bands only, and good phonation it was, too.

Within a few months the following unique phenomenon has been observed: In phonation the vocal bands become approximated naturally, but, if the phonatory effect be continued, the two ventricular bands are forced together in close apposition, and in further continuance of the phonatory effect the sac of Hilton on the left side suddenly bulges forward with an audible jerk into the interior of the larynx as if shot out from an air gun, presenting much such a picture as though the horn of the hyoid bone had just undergone dislocation; and in another second the right sac is thrust forward in a similar manner, but to a less extent. The sac in the left side looks like a small globular tumor the size of a small cherry, of much paler aspect than the remainder of the larynx by reason of distention of the mucous membrane.

HOSPITAL NOTES.

TREATMENT OF TYPHOID FEVER IN THE HOSPITALS OF NEW YORK, BOSTON, AND MONTREAL.

NEW YORK HOSPITAL.[1]

DURING the early part of this summer the routine treatment of typhoid fever in DR. PEABODY'S wards, if the patient entered during the first ten days of the disease, was a calomel purge immediately followed by naphthaline in doses of ten grains every three hours. The first seven cases died (two having entered the hospital moribund), one of septic infection, one of acute mania, and the three others simply from the intensity of the poisoning, the lesion being very extensive.

Since August 14th we have had but one death in twenty-one cases—two of these are still sick, but doing well—of this number, thirteen have had absolutely no treatment *directed to the intestines*, eight have had naphthaline, and among these the one death occurred.

When the temperature rises high enough to make the daily average about 103°, antifebrin is given, either in large doses at long intervals, or in continuous doses of two grains every two hours during the day, and three grains every three hours during the night. Some patients have had two grains every hour during the day. In no case was any bad result noticed; on the contrary, the patients were quieter, slept better, and temperature, pulse, and general condition were much improved.

Whiskey is given when pulse, tongue, and condition indicate the need of stimulation, the amount varying from three to eight ounces during the twenty-four hours. Fluid extract of digitalis is added occasionally in small doses.

When there is insomnia, it is almost always relieved by morphine, generally given hypodermatically, as so many of the patients have a greater or less tendency to vomiting. In a few cases the bromides, or urethan have been tried, but not with such good results as morphine. In cases of delirium with great restlessness, hyoscin hydrobromate, given hypodermatically in doses of one-hundredth of a grain, has been tried with very good effect. It has been followed by several hours of quiet sleep.

Diet is of milk, patients taking generally from four to five pints daily. If the stomach is at all irritable, milk with lime-water, or peptonized milk is given. Some patients take beef tea well, and have from one to two pints of this daily in addition to the milk.

In a few cases nourishment by the rectum has been tried for short times, with the effect of relieving an irritable stomach. Laxative enemata are given every other day if patients have no movements from the bowels; and in almost all of our cases this has been necessary,

[1] Reported by Dr. George A. Richards, House Physician.

as patients have been generally constipated, diarrhœa being the exception rather than the rule, during the summer just passed.

Counting three cases not already entered in this report, as they were not here during Dr. Peabody's service, there have been thirty-one cases treated here since last April with eight deaths, a mortality per cent. of almost 26. This very high rate is to be explained partly by the fact that several patients entered late in the disease, and in very bad condition.

ST. LUKE'S HOSPITAL.

In DR. FRANCIS KINNICUTT'S wards the treatment is essentially general and symptomatic. During the past several years, when it has been possible to establish the date of the beginning of the disease, occasionally one or more moderately large doses of calomel have been given in the first days of the fever, but never with the result of *aborting* the disease. So many factors are involved, that it is difficult to give a trustworthy opinion in regard to the alleged power of calomel given at the inception of the disease, *at least* to influence favorably its subsequent *course*. Naphthaline given in frequently repeated doses, to the amount of sixty grains daily, has also failed in any abortive effect.

Rest, quiet, fresh air, and a very carefully regulated diet of mixed liquid food constitute the general treatment. Increased fever and intestinal irritation frequently have been observed to follow the ingestion of large quantities of raw milk, and in such cases a reduced amount of peptonized milk has been given.

The symptomatic treatment may be summarized as follows: Urethan is considered by far the safest and most efficient hypnotic. Its not sufficiently well recognized antipyretic properties increase its value. It is given in doses of thirty to forty grains, repeated in an hour or two, if necessary, to relieve insomnia. Believing that excessive diarrhœa has its source often in the presence of undigested food in and catarrhal inflammation of the bowel in addition to the specific lesion, the stools are carefully examined in such cases. The presence of curds demands a more careful regulation of the diet. A combination of naphthaline and bismuth has been found efficient in controlling the catarrhal inflammation and in correcting fetor.

Recognizing the fact that paralysis of the bowel and thereby obstinate constipation may proceed from a *deep* ulceration, laxatives are not given after the first week or ten days. Small enemata every other day are used to relieve constipation. Since the discovery of the new group of antipyretics, they have been employed, almost to exclusion of baths in any form, to control what is believed to constitute harmful continuous pyrexia.

The general rule adopted is to give antipyretics only when the temperature reaches 103°. Kairin, hydrochinon, thallin, antipyrin, and antifebrin have been successively used and their effects very carefully observed. As the result, antifebrin is at present almost exclusively employed. Very exceptionally have any ill effects followed its use.

For combating heart failure, alcohol is chiefly relied upon. Where heart weakness proceeds from degeneration of muscle fibre, a minimum effect may be expected from any method of treatment; if failure is chiefly due to impaired nerve force or influence, which is more often the case, the use of alcohol gives the happiest results. Alcohol is rarely given in the early stages of the disease, very commonly in the third and fourth week. Many cases are treated throughout, without its employment. Its use is restricted to combat *special* symptoms. Sir William Jenner's rule is largely the guide in its administration. "When in doubt in an individual case of typhoid fever, abstain from giving it; where there is a question of the larger or smaller dose, prescribe the latter."

DR. BEVERLEY ROBINSON'S general treatment of typhoid fever is expectant; he does not believe that there is any known specific for this fever and is very doubtful as to the power of any drug, in use at the present time, to abort this disease. His treatment naturally depends upon the stage of the malady at the time it comes under his care, and whether it has a tolerably mild course without complications, or whether the disease from the beginning is marked by more than ordinary severity and is accompanied by manifest departures from what is usual, and the complications indicate special severity of the attack, or march of the affection.

The cases of typhoid fever which he has treated during several years past, have been, as a rule, of moderate severity. Diarrhœa has not been very frequent, temperature rarely going beyond 104° at any time, and then only during brief periods, heart complications have been occasional, pneumonia rare, and nervous symptoms showing either ataxia, or great adynamia, in relatively few instances; he recalls not more than three or four cases of intestinal hemorrhage.

In the incipient stage of typhoid fever a mild saline cathartic preceded by one or two grains of calomel, or double that quantity of blue mass, is prescribed. Later, and so long as the development of typhoid fever appears doubtful, small doses of aconite, ammonia, and spirit of Mindererus, or neutral mixture, are the means he employs to subdue febrile excitement. If fever still continues, with marked elevation of temperature in the afternoon, after a few days, and other symptoms point more surely toward the typhoid state, these agents are abandoned for tonic doses of quinine, milk diet, which is insisted upon, and occasional tepid sponging of the trunk and limbs with lukewarm water and vinegar. Complications are treated as they arise, bronchitis, or pneumonia with tincture of iodine, turpentine stupes, or Corson's paint, to the chest walls; chloride of ammonium, moderate doses of digitalis, and moderate stimulation with whiskey internally. If the heart becomes irregular or notably weak and frequent, or a blowing murmur shows itself at the apex, he now orders tincture of strophanthus in five-drop doses every six hours, besides using mustard poultices or dry cups to the chest, and beginning, continuing, or increasing the alcoholic stimulant. Nervous derangements are influenced favorably by ether in the form of perles, by musk, or by a mixture of lavender, chloroform, ammonia, and camphor. Hemorrhage is controlled with turpentine and opium. High temperature is controlled by antifebrin in five grain doses, repeated two, or more times, in the twenty-four hours, or whenever the body temperature goes beyond 103° Fah. in the axilla.

The diet is usually limited to milk during the duration of the fever. This is given to the patient every two

hours, as much as he will drink; nausea, or disgust for food, being to some extent relieved by the addition to the milk of lime water, Vichy, or Vals water, or by the alcoholic stimulant administered at the time. If nausea persists and the patient becomes very weak and prostrate, dry champagne is given frequently in small doses. Occasionally, *black coffee* has worked wonders in bringing back to life patients who appeared almost moribund. Solid food, as a rule, is not allowed until all febrile reaction has been absent at least one to two weeks. When begun, he is now using with favorable results what is known as albumenoid food, which seems to be tolerated by the stomach and bowels more readily than beef peptonoids, or other preparations of a somewhat similar character. At a later period, if the albumenoid food and the beef peptonoids have been well supported, and, especially, if no recurrence of the fever take place, farinaceous food is permitted and a small quantity of the light meats once a day.

In very few patients has he found the necessity at any time to treat their febrile condition by means of *systematic cold bathing*, and he regards this treatment as ill-adapted to the large majority of typhoid fever cases met with in New York City, either in hospital, or private practice. Whenever hypostasis of the lungs involves these organs in a considerable degree, he believes frequent inhalations of oxygen gas to be a measure of great practical utility in giving to patients some additional chances of preserving life otherwise imminently imperilled.

THE MASSACHUSETTS GENERAL HOSPITAL.

The plan of treatment of typhoid fever carried out in DR. FREDERICK C. SHATTUCK'S wards has again become chiefly a symptomatic one. This summer he tried in six or eight cases the administration of naphthaline, eighty grains a day in divided doses, ten grains of calomel being given immediately on admission to the ward. It has been claimed by some that early cases may sometimes be aborted in this way. One patient thus treated, presenting the important early symptoms, recovered in three or four days; and so did another who received no medicine whatever.

Among the points in connection with typhoid fever in regard to which we are still very ignorant is the question of fact. Does the disease ever abort spontaneously, or in consequence of treatment? Dr. Shattuck gave up the naphthaline treatment because he could not see that in cases in which it received a thorough trial it was productive of any good result, while in two cases it caused strangury, in one other hæmaturia.

This year he has also discontinued the systematic use of internal antipyretics, ordering them only when the temperature is very high and the patient very restless, or, in his judgment, suffering in some other way directly from the effects of the temperature. These indications are seldom present.

Diet. Six ounces of milk are given every two hours. If this is not well borne lime water is added, or the milk is peptonized; or, if there is no diarrhœa, animal broths are allowed. When the evening temperature reaches the normal point, patients who have been on an exclusive milk diet are given broths, then raw eggs, then light farinaceous articles, and meat is permitted toward or at the end of the first week of convalescence. Stimulants are given in such quantities as the pulse, the tongue, and the nervous symptoms may seem to demand.

In cases characterized by constipation, a large percentage the past two years, a plain water enema is given every second day. For sleeplessness and diarrhœa opium is the main reliance. In intestinal hemorrhage opium is given in sufficient quantity to narcotize the patient, stimulants are used according to the pulse, and ergotine is injected under the skin. To moderate the temperature, stimulate the nervous centres, and promote the comfort of the patient he is sponged with water at a temperature of 60°–75°, every two hours if the temperature is 103° or more; every three, four, or six hours according to circumstances if it be below that figure. Sometimes alcohol, or alcohol and water, is substituted for the plain water baths once or twice a day.

It will be seen by the above that the aim in treatment is simply to conduct the patient to recovery, safely and as speedily as is compatible with safety. A certain percentage of patients receive neither drugs nor stimulants, a certain proportion stimulants only, and a certain proportion both drugs and stimulants.

DR. R. H. FITZ during the past summer made a few attempts in his ward to test the asserted value of naphthaline in checking or overcoming the progress of typhoid fever. The remedy was used in three grain doses, every two hours during the first week of the fever. There was no evidence that any benefit resulted.

Although given in capsules, nauseating eructations were, at times, complained of, and the size of the capsule was inconvenient. The disadvantages being conspicuous, without any evident corresponding gain, the use of the naphthaline was soon discontinued.

Of the newly discovered antipyretic drugs, antifebrin was the one usually employed when there were special indications for their use. The artificial maintenance of a low range of temperature throughout the course of the disease was not deemed important. If an elevation of 105° F. was reached, a sufficient quantity of antifebrin was given to lower the temperature four or five degrees. The production of chilly sensations was considered undesirable. A single dose of five grains often sufficed. If necessary, this dose was repeated at intervals of an hour until fifteen grains were taken. Doses of three grains were found of great benefit in relieving the headache so frequently occurring in typhoid fever. There was no necessarily simultaneous falling of the temperature.

The routine treatment of all cases consisted in a carefully regulated diet and the use of cold sponge-baths every two hours. The diet was chiefly milk, as nearly four ounces every two hours as possible. If the milk was not well borne, it was pancreatized or mixed with lime-water. The use of the exclusively milk diet was maintained until the temperature remained normal for at least a week. Beef tea, strained soups, and broth were then added, and, in the course of three or four days, soft puddings, eggs, and bread.

In the third week of normal temperature there was no restriction as to diet, with the exception that the most nourishing and easiest digested foods were ordered.

Wine or brandy was given after the first week whenever a weak pulse or excessive nervous debility was present.

Dover's powder or morphine, urethan, and chloral

were used as hypnotics, the former, where sleeplessness was accompanied with pain, the latter, where pain was absent.

Constipation was a frequent symptom, and was invariably relieved by enemata as often as once in three days. In one case, irrigation of the colon, twice daily, became necessary. During convalescence a change of diet was often an efficient means of insuring a normal evacuation.

Profuse diarrhœa was controlled by liquid preparations of opium, and intestinal hemorrhage was checked by ten minims of laudanum every two hours.

THE MONTREAL GENERAL HOSPITAL.

The cases of typhoid fever treated in DR. GEORGE ROSS's ward include a larger proportion of severe and very severe than perhaps elsewhere—the reason being that, owing to the great prevalence of the disease in Montreal at certain seasons, and to the limited accommodation, it is a necessity to refuse a considerable number and receive only those most urgently requiring care. If we come, therefore, to look at the mortality, this important fact must be borne in mind. Here, any method of treatment which will give results approaching the average in other places, must deserve confidence, seeing that we deal with carefully selected bad cases.

The treatment is based upon what might be called an "intelligent expectancy." The diet is composed exclusively of milk and rice water. The amount of milk consumed daily is not considered immaterial. It is not deemed prudent to allow, as is often elsewhere done, milk *ad libitum*. On the contrary, the daily quantity is strictly limited, in the case of adults, to three pints *per diem*. This amount is found sufficient to meet the wants of the economy, whilst the ingestion of more leads to the danger of accumulation of feces and aggravation of symptoms. The milk is frequently diluted with rice water, or, if thought well, with lime water. When the stomach is weak, benefit is obtained by artificial digestion of the milk, but the great majority drink pure milk and appear to assimilate it without difficulty. It is a rule to nurses to supply cold fresh water or ice water to typhoid patients freely, and, during the height of the fever, pellets of ice to suck. When a patient is delirious or unable to make known his wants, he is still to have cold water given him frequently and freely. It is believed that strict attention to this apparently simple item is really a matter of considerable importance. It is a fixed rule to allow no change from a milk diet until the patient's temperature has been normal both night and morning for at least eight consecutive days. During the early stages, and until a material fall in the temperature has taken place, cold sponging of the entire body is carried out every three or four hours, as the case may require: and constant cold is applied to the head by means of a coil through which ice water flows. These measures are relaxed as the temperature falls and the symptoms improve.

In mild cases, or even in those of moderate severity but running a course approaching to the type, alcoholic stimulants are not given, except in small quantities during the later stages; but in all those showing a higher grade of fever, as marked by an elevated temperature and signs of vital depression, whiskey and brandy are employed in amounts varying with the special indications of the case. When the prostration is marked, and the nervous symptoms severe, stimulants are given freely.

As regards medicines, a favorite prescription is one containing gtt. ij each of acid. carbolic. pur. and tinct. iodin., well diluted in water every two hours. It is a rare occurrence to meet with discolored urine from this remedy. No striking results follow its administration. In the later stages, quinine in tonic doses, with or without digitalis, is given. When a case is seen sufficiently early, a full purgative dose of calomel is found to be useful in unloading the *primæ viæ* and preparing for the siege. We find a large proportion of our patients constipated rather than suffering from diarrhœa. The bowels are never allowed to remain quiescent for more than three days at most. More generally two days only are allowed between evacuations, which, if necessary, are obtained by means of enemata. These are greatly preferred to laxative medicines. In approaching convalescence, great caution is exercised in administering a purgative, since rapid elevation would seem sometimes to follow directly after even a dose of castor oil. The presence of prominent symptoms often leads to the medicinal treatment being, for the time, entirely directed toward counteracting them. For instance, if there be marked gastric irritability, bismuth, bicarbonate of soda, and such like drugs, with effervescents, are given. If the case be especially marked by bronchitis and pulmonary congestion, turpentine in emulsion is relied upon. If tympanites be considerable charcoal is found very useful, sometimes turpentine, together with limitation of the food for a time, and attention to the bowels. If muscular tremor, delirium, and insomnia are a marked feature, such remedies as camphor, valerian, and ammonia are given at frequent intervals. Of the complications, hemorrhage is treated by ice, gallic acid, digitalis, or lead and opium, and the external application of an ice-bag. In peritonitis (without perforation) opium is given in moderate doses, and without any bad effects. When perforation is known to have occurred, hypodermatic injection of morphia and hot applications.

The use of quinine in antipyretic doses, during the active stages of fever, has been entirely abandoned. In some of those unaccountable "excursions" of the temperature which we are apt to witness during commencing convalescence, full doses of quinine are used with very good effect. Of other antipyretics, antifebrin has had a moderate trial in this disease, by some members of the staff. The conclusion arrived at seems to be that the sudden depressions of temperature produced by the drug do not in any way modify the course of the fever, which only subsides at the same time as if this had not been employed. In some cases, decided antipyretic action could not be obtained from it. In others, its ill effects, cyanosis and cardiac depression, were witnessed, but not to an alarming degree.

MEDICAL PROGRESS.

THE BACILLUS OF CANCER.—At the meeting of the Medical Society of Berlin, on November 27th, DR. SCHEUERLEN, assistant in the Medical Hospital of Professor Leyden, spoke on the etiology of cancer. He had made experiments with about forty specimens of

cancer of the breast; from every specimen he inoculated twenty culture tubes. Of these 800 inoculations, 400 had been fruitful. He obtained the cancer juice aseptically, and cultivated from it a microörganism, which proved to be a spore-forming bacillus. Cultivations were made upon exudation taken by puncture from a case of pleurisy with effusion, put in the sterilizer for five days; and coagulated on the sixth day; cultivations made upon blood-serum, agar-agar, peptone, gelatine, or potato were equally successful. The growth was very luxuriant, taking place in the following manner: The bacilli were first found in the growth; then in from twelve to twenty-four hours spores made their appearance, and covered the entire surface. In microscopical preparations of the cancer-juice itself the same spores were found often in much smaller number than the bacillus, whilst it has never yet been seen in sections. The microbe forms upon the surface of the culture materials a thin film, which is either transparent or of a yellowish-brown. The bacillus can be stained by all the methods in use (very easily by Gram's method); the spores are stained with difficulty, and only by Professor Ehrlich's process for staining the tubercle-bacillus. Both the bacillus and its spores have spontaneous movements. The spores are to be found mostly outside the cells, rarely single, generally in clusters, as though the cells were sprinkled with them. Experiments were made on six female dogs; the cultivations were injected into the mammary gland, but no conclusive results have been obtained. A soft swelling, not distinctly circumscribed, formed at first, and then diminished; it became compact and circumscribed, showing under the microscope a decidedly epithelial character, much related to cancroid. This bacillus Scheurlen believes to be certainly the cause of cancer.

In the discussion which followed, Professor A. Fränkel, one of the first bacteriologists of Germany, objected to the method by which these experiments had been conducted, saying that secondary infections might easily have taken place, such as frequently occur. Neither did the quick growth of the bacillus answer to the slow growth of cancer, as hitherto found in all clinical experience.

At the next meeting another experimenter, Dr. Schill, of Dresden, who has during the last five years been seeking for a microbe of cancer and sarcoma, will explain his results. It seems that he has discovered a bacillus resembling that described by Dr. Scheuerlen.—*British Medical Journal*, Dec. 3, 1887.

EXTIRPATION OF THE LARYNX.—HAHN, at a meeting of the Berlin Medical Society, on November 16, 1887, reported fifteen partial or total extirpations of the larynx. Of these patients two were living; one was operated on seven years before, and was living in good health, aged sixty-nine years. In this case the extirpation was very extensive; the specimen was typical carcinoma. The second case was operated on one and a half years previously, and was partial. It is uncertain whether there is a return in this case, or simply scar tissue which is present. Most of these patients were aged between thirty-five and sixty-nine years. Of all these only two recovered; a third is living, but has a return of the cancer. Hahn believes that carcinoma which shows a tendency to horny or warty growth has a more favorable prognosis than other carcinomata. He thinks that most operations are undertaken too late, and that in carcinomata with a malignant tendency operation is not indicated.—*Deutsche medicinische Wochenschrift*, November 24, 1887.

ANTIPYRIN IN SEA-SICKNESS. — The Paris correspondent to the *Lancet* of November 12, 1887, writes as follows:

The Société de Biologie has devoted part of its last two sittings to the discussion of the different means recommended for the relief of sea-sickness. A note was presented by M. Hantz on the best way of administering cocaine, and received without any expression of opinion. M. Dupuy said that sea-sickness was more severely experienced by dyspeptic subjects, and particularly those who had dilatation of the stomach. In eleven cases he had given antipyrin in doses of from 30 to 45 grains for a few days before embarking, and the patients had all informed him that they had been free from sickness. M. Dastre said he had instituted a series of experiments upon animals, imitating as closely as possible the movements of "pitching" and "rolling." He had found that there was an incredible displacement of the abdominal viscera, which strike against the diaphragm and cause the gastric uneasiness. The body struggles with these displacements by means of muscular contractions, and the respiratory rhythm accommodates itself to them. Professor Brown-Séquard remarked that this theory of visceral displacement was very old, and one which he had been able to verify in his frequent passages across the Atlantic. It was evidently the view entertained by Wollaston, who recommended Arago to place a pad over his stomach when he crossed the Channel. M. Maurel had no doubt as to the influence of the stomach, but thought that cerebral shock also played a part in the determination of the symptoms, inasmuch as the sickness always occurs when the boat is going down, never when it is being lifted up. The best preventive was lying on the back. Beyond the statement that sea-sickness is associated with dilatation of the stomach, and the hope held out by M. Dupuy that in antipyrin we now possesss a remedy for it, there was nothing new in the views expressed by the different speakers. I have referred, however, at some length to the subject, because my own seafaring experience has been somewhat extensive, extending over intervals during the last fifteen years, and including some kind of trial of every new drug recommended. Until a month ago the plan I always recommended was to take bromide for some days before going on board, and, if discomfort was felt notwithstanding, the dorsal decubitus was to be adopted. This, together with champagne, is generally what the Transatlantic captains advise. In a recent trip to New York I tried two other remedies. The surgeon of the ship recommended me tincture of capsicum, and I had also taken a supply of antipyrin. As far as one case goes, the result of the antipyrin was most satisfactory, and I can to this extent endorse the experience of M. Dupuy. The capsicum was also serviceable as a palliative, for several persons who had taken it continued to ask for it, but it did not arrest the sickness like antipyrin. A fellow passenger who suffered from dilatation of the stomach with *elapotement* was not sick at all.

THE ANTISEPTIC TREATMENT OF DIPHTHERIA.—We add to the formulæ published in THE MEDICAL NEWS of December 3, 1887, the following, which are quoted from various authors by LE GENDRE, in the *Archives de Laryngologie*, No. 1, 1887:

Carbolic acid by inhalation, may be given by the use of a teaspoonful of the following mixture, added to sufficient water:

℞.—Acid. carbolic.	ʒ 70.
Acid. salicylic.	ʒ 14.
Acid. benzoic.	ʒ 28.
Alcohol	ʒ 117.

The strength of the spray should be proportioned to the severity of the disease, the age of the patient, and the size of the room.

The following may be taken internally:

℞.—Succi citronis	ʒ 75.
Sodii chlorid.	
Sodii sulphat.	āā ʒ 2½.
Mel.	ʒ 3¾.
Syrupi calcis	♏ 30 to 60.
Sodii carbolat.	gtt. 20 to 30.

A teaspoonful or dessertspoonful may be taken every two hours.

For local application:

℞.—Aquæ calcis	ʒ 30 to 75.
Liquor. ferri chlorid.	♏ 30 to 120.
Acid. carbolic.	gr. $\frac{8}{10}$ to 15.
Mel. rosat.	ʒ 7½.

Also,

℞.—Sodii borat.	
Potass. chlorat.	āā gr. 75.
Acid. carbolic.	gr. 4.
Glycerin.	ʒ 2½.
Mel.	ʒ 7½.

The pharynx, and especially the tonsils, may be touched three times daily with:

℞.—Tinct. krameriæ	ʒ 2½.
Tinct. benzoin	♏ 75.
Tinct. aloes	♏ 45.

After which insufflation of the following powder should be made:

℞.—Tannin	gr. 23.
Sulphur. sublimat.	
Potass. chlorat.	āā gr. 30.

To irrigate the fauces of a child suffering from diphtheria it should be wrapped in a shawl or blanket, its arms by its sides to prevent struggling. It should be held upon the knees and against the breast of one person, whose hands are folded over the child's trunk in front. A napkin may be placed under the chin, and the nostrils closed, when the child will open its mouth. The jet should be impelled with sufficient force to excite reflex contraction of the pharynx, when there will be little annoyance from the passage of fluid into the trachea, and choking.

THE CONVERSION OF BENIGN GROWTHS OF THE LARYNX INTO MALIGNANT.—At the recent Congress of German Naturalists and Physicians PROF. SCHNITZLER read a paper upon the subject of the malignant degeneration of benign growths in the larynx. He first described a case of epithelial carcinoma with secondary growths in the lymphatic glands and pleura, in a patient who some months previously had been operated on for papillomata, the recurrence of which had been treated by cauterization. The patient subsequently came under Professor Schnitzler's care with symptoms of perichondritis, but the carcinomatous nature of the disease was recognized, and the supervention of pleurisy some weeks later was considered to be due to a diffusion of the malignant disease. This diagnosis was confirmed after death, when, besides the laryngeal and pleural carcinoma, there were found necrosis of the thyroid cartilage and gangrene of the right lung. Professor Schnitzler remarked upon the rarity with which benign tumors take on malignant characters, he having seen such conversion only three times among hundreds of cases of laryngeal papillomata. He left undetermined the question whether the operations and frequent cauterizations induced the malignant disease, and said that endo-laryngeal operations upon papillomata should be discountenanced on this ground. He also spoke of the difficulty in the differential diagnosis between benign and malignant growths, as well as between laryngeal syphilis and carcinoma. Dr. Morelli related the case of a man whose larynx was so blocked by papillomatous growths as to necessitate tracheotomy prior to a thyrotomy, with complete ablation of the new growth and galvano-cauterization of the laryngeal wound. The patient left apparently cured, but wearing the tube. After the lapse of a year he returned with evident carcinomatous degeneration of the papilloma, which filled the larynx to the level of the tube, which was partially displaced and blocked by it. This was the only case of the kind that Dr. Morelli could recall within a period of nearly ten years. Dr. Seifert referred to a case published by Böhmer, where papillomata (histologically examined) had been treated by Professor Gerhardt and himself for a year, but which passed into carcinoma, for which extirpation of the larynx was practised; but the patient did not long survive the operation.—*Lancet*, November 26, 1887.

SHOULD LEPERS BE ISOLATED?—The *British Medical Journal* of November 12, 1887, in an editorial upon this subject, concludes as follows: When we consider how long the period of incubation may be, who can be sure that ten, or even twenty years hence traces of that patient may not be found in the development of a case of leprosy amongst some of the people with whom she came in contact? We are decidedly of opinion that a few more cases of leprosy are seen in London than formerly was the case, but this we attribute to the fact that travelling is more general, more usual, and less expensive, and that patients of all kinds come to London for advice in increasing numbers.

Without sounding a note of alarm, or considering that there is any occasion at present for compulsory measures in England, we are yet unable to consider the presence of lepers in England as being absolutely free from danger, and believe that the time will come when cases of leprosy in this country will share the attention

of the sanitary authorities with other diseases universally admitted to be contagious.

STROPHANTHUS.—HOCHHAUS, in the clinic of Fürbringer, has made an extended investigation on the value of strophanthus, and concludes as follows:

In sixty cases he found that in valvular lesions, with compensation, tincture of strophanthus lessens, invigorates, and regulates cardiac action, relieving dyspnœa and œdema. Digitalis is generally effective in cases benefited by strophanthus, but there are cases not benefited by digitalis, which improve with strophanthus. In comparison between the action of digitalis and strophanthus, digitalis affects the heart more promptly; strophanthus relieves dyspnœa, caused by cardiac disease, more rapidly and effectively than does digitalis. The indications for the use of strophanthus are within more narrow limits than those of digitalis; we have not yet determined clearly these conditions. In degeneration of the heart-muscle, with small, frequent irregular pulse and marked dyspnœa, strophanthus is very effective in relieving dyspnœa, and improved cardiac action follows.

In acute and chronic nephritis, the tincture is less effectual than in other cases; dyspnœa is frequently relieved without the production of diuresis, or lessening the œdema.

Œdema, from cachexia, is sometimes relieved by the remedy. Disturbances of digestion are often produced, which generally subside if the drug be continued.

Regarding dosage, from three to six drops of the tincture should be given in a teaspoonful of water or wine, and when needed, syrup or licorice may be added, in the beginning of treatment, and the amount increased two drops with each dose daily until distinct effects are evident, when the dose last given should be continued; it is not advisable to go higher than from three to twenty drops. From three to five drops is sufficient for a child.

The effect generally appears in two or three days, and endures for one or two weeks, although great variations on this point are observed. A cumulative action was not observed. Strophanthus is not of great and peculiar value, but has a useful action in aiding and supplementing digitalis.—*Deutsche medicinische Wochenschrift*, October 27, 1887.

INGLUVIN.—MOHR has found the following a convenient formula for administering ingluvin:

℞.—Ingluvin	ʒ i.
Acid. hydrochlor.	ʒ i.
Aquæ	ʒ 7½.

of which two or three teaspoonfuls or dessertspoonfuls may be taken daily.—*Revue Générale de Clinique et de Thérapeutique*, November 24, 1887.

THE DECOMPOSITION OF SALOL IN THE ANIMAL BODY.—NENCKI, in the *Therapeutische Monatshefte* for November, 1887, reports the results obtained from a series of experiments with the various digestive ferments in their power to decompose salol. He found that the digestive ferments present in the pancreas, liver, and intestine, had equal effects in producing the decomposition. In the stomach the acidity of the gastric juice was a hindrance. What is remarkable, however, is the fact that muscle substance possessed, when the alkaline carbonate was added, a decomposing power equal to that of liver, pancreas, or intestine. Nencki infers that the glycerides of the common fatty acids are broken up in the various organs of the human body; he thinks that the cell elements possess this power. In support of this opinion he adduces experiments made with albuminoids outside the body, in which the effect was much less than that produced by living tissues.

From its quality of being easily decomposed by living tissue in the presence of an alkali, Nencki considers it likely to prove of value as an external antiseptic, by reason of the two efficient antiseptics which compose it.

LIGATURE AND EXCISION OF THE SAC IN HERNIA.—DR. POLAND, in the *Practitioner* for November, 1887, sums up the advantages of ligation and excision as:

Immediate—

(1) In many cases it does not add in any way to the risk of operation.

(2) It shuts off the peritoneal cavity in a few hours.

(3) It prevents hemorrhage into abdomen.

(4) It prevents septic peritonitis.

More remote—

(5) It promotes tendency to radical cure.

(6) It leads to more perfect adjustment of truss and comfort of patient.

SOZOIODOL.—LASSAR describes, in the *Therapeutische Monatshefte* for November, 1887, this recently prepared substance, which has the formula

$$C_6H_3ISO_3H(OH).$$

It contains 42 per cent. of iodine, in combination with sulphur and carbolic acid. It is easily soluble in water and alcohol, and is not decomposed by substances used commonly as vehicles.

Lassar has used it in 5 and 10 per cent. ointments, in combination with lanoline, starch, oxide of zinc, and chalk, as an alterative and antiseptic.

NOTHNAGEL ON CARDIAC MEDICATION.—In a recent lecture on this subject, NOTHNAGEL stated that he still preferred digitalis to more recently advised remedies, and did not prescribe convallamarin unless digitalis had proved useless.

Adonis vernalis he prescribes in the tincture, in quantities of 60 minims during the first day of treatment. On the second day the quantity may be increased to 75 or 90 minims, but more than 105 minims in twenty-four hours should not be given. Sparteine has been used in doses of $\frac{1}{60}$ of a grain, as the symptoms demand, for cases where the cardiac rhythm is greatly disordered.

Nothnagel considers caffeine much preferable. He gives it in broken doses of 3 grains, as many as five doses, at intervals indicated by the symptoms, and increases the amount used to 30 or 45 grains daily; with the French, he prefers the benzoate of caffeine. In anasarca he alternates caffeine and digitalis. To produce diuresis, Nothnagel uses calomel and opium, from 8 to 10 grains. The inconveniences of this treatment are the possibility of the calomel decomposing into the bichloride in the intestines, and mercurial poisoning. If no diuresis is produced in three or four days, its use

should be abandoned. The calomel treatment may be intermitted with advantage at any time.

Oertel's method of treatment by open air exercise, in moderate altitudes, he considers inadmissible in all cases of degenerated heart muscle.—*Revue Générale de Clinique et de Thérapeutique*, November 10, 1887.

THE TREATMENT OF PSORIASIS.—BESNIER uses

℞.—Naphthol (β) . . . . . 1 part.
Adipis . . . . . 9 parts.

The affected part is to be well rubbed with this salve before retiring, and flannel worn during the night; in the morning a bath of hot soapsuds should be taken.

If no improvement follows after five days of this treatment pyrogallic acid is used, 5 or 10 to 100. To avoid irritation friction is employed on small surfaces only, and these surfaces are changed every four days.

For extensive surfaces Besnier employs a dressing of

℞.—Acid. pyrogallic.
Acid. salicylic. . . . . ää gr. 90.
Ether and alcohol, q. s. to liquefy.
Add collodion flex. . . . ʒ 20.

—*Revue Générale de Clinique et de Thérapeutique*, November 24, 1887.

NAPHTHOL AS AN ANTISEPTIC.—The antiseptic properties of naphthol have been known for a long time, but owing to the supposed toxicity of this substance, its employment has been till now limited to the local treatment of certain affections of the skin. At a recent meeting of the Academy of Sciences, PROFESSOR BOUCHARD stated that, after two years of research, he has been able to determine and measure the antiseptic power of naphthol as well as its toxic power, and he has been led to conclude that, in certain circumstances, it is to be preferred to all the antiseptics known, owing to its very feeble solubility. To disinfect a surface easily accessible, the soluble antiseptics suffice, and the same should be employed to effect general antisepsis, but none has as yet been found that can be introduced into the blood in sufficient quantity to destroy the vitality of the microbes without compromising the health or life of the patient. To produce antisepsis in the thickness of the tissues, or in that of cavities reached with difficulty, where continued drainage cannot be practised, the insoluble antiseptics, or those only partially soluble, can alone be employed with advantage. They should be preferred for the interstitial treatment of certain maladies of the tissues, for the antisepsis of serous cavities, and particularly for the antisepsis of the digestive tube, which the author has had especially in view in his researches. The explanation on which the advantage of an insoluble antiseptic is founded is that from the fact of its insolubility it is unabsorbable; it will therefore be found present throughout the length of the digestive tube, and can be administered in sufficient quantity to render all fermentation impossible, without having to fear its general action on the economy, into which its insolubility would prevent its penetrating. It was for these reasons that Professor Bouchard preferred the salicylate of bismuth and iodoform, and Rossbach also, when he employed naphthol for intestinal antisepsis. After having tested the antiseptic property of naphthol in certain microbian maladies, Dr. Bouchard found that in a solution of 5 grains to one quart of diluted alcohol, the naphthol very much retarded the development of the bacillus of typhoid fever, as well as the germination of the bacillus of tuberculosis. Urine, shaken up with naphthol in powder, then filtered and exposed to the air, does not ferment. According to Bouchard, the dose of naphthol which may be considered toxic for a man weighing 140 pounds is about 8 ounces. 40 grains of naphthol per day suffice to procure intestinal antisepsis; the author therefore concludes that the toxic power of this substance has been very much exaggerated, though there can be no doubt that a solution introduced into the organism directly through the veins would prove far more dangerous.—*Lancet*, November 19, 1887.

TREATMENT OF DIABETES, WITH THREATENED COMA.—STADELMANN has employed, with good results:

Acid. citric. . . . . ʒ 2.
Sodii carbonat. . . . . ʒ 4½.
Glycerin. . . . . ʒ 5.
Aquæ destillat. . . . . ʒ 37½.
Spirit. menth. piper. . . . . gtt. 3.

To be taken two or three times during twenty-four hours.

By this combination the acids produced in the disease are neutralized, and the dangers of acetonæmia lessened.

Saccharin may be used advantageously in the following combinations:

Sodii acet. . . . . ʒ 2½.
Aquæ carbonat. . . . . ʒ 22½.
Saccharini . . . . . gr. 1½.
Essent. citri . . . . . ♏ 40.

Which may be taken three or four times daily.

Also

Sodii tartrat. . . . . ʒ 7½
Aquæ carbonat. . . . . ʒ 50 to 75.
Saccharini . . . . . gr. 5.
Essent. citr. . . . . ♏ 75.

To be taken several times daily, as occasion demands.—*Therapeutische Monatshefte*, November, 1887.

ANTISEPSIS OF THE BLADDER AND URETHRA.—At a recent meeting of the French Academy of Medicine, LAVAUX read an account of his method of treatment of the bladder and urethra, with the following conclusions: Continued lavage of the anterior portion of the urethra and intravesical injections without a sound are the most simple and harmless method of genito-urinary antisepsis which can be employed in all diseases of the urethra. The use of antiseptics and hot injections by this method greatly lessens the danger of accidents in rapid dilatation of the urethra. Rapid dilatation, for simple strictures, is greatly to be preferred, with these precautions, to slow dilatation. Intravesical injections, made without the use of a sound, are quite sufficient to maintain the calibre of the dilated urethra. By these methods the indications for urethrotomy are much less frequent. Divulsion of obstinate strictures is rendered much less dangerous by the method.—*L'Union Médicale*, November 3, 1887.

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SATURDAY, DECEMBER 17, 1887.

LEPROSY IN ITS RELATION TO THE STATE.

ALTHOUGH leprosy has long since ceased to be endemic in Europe, and has never existed to any extent in this country, it has in the popular mind the most dreadful associations, and the very rumor of the existence of a case in the neighborhood is sufficient to throw the community into a terror. Unfortunately, the ideas which prevail are derived from the sacred writings, which contain a larger number of references to leprosy than to any other disease, and in which it figures so often as the most condign punishment, or as the type of sin, that we can scarcely wonder at this widespread dread. Admirable in many respects as are the Levitical instructions regarding leprosy, we nowhere else in ancient writings obtain such clear notions of the ignorance which existed of the true nature, or even the modes of recognizing disease. Thus it is probable that all skin affections, from itch to eczema, were regarded as leprosy, which was also thought to attack clothing and houses!

A very practical question has arisen in Philadelphia, which brings into prominence the relation of the State to this disease. A woman and her daughter came here from Brazil some months ago, and have been under the care of Dr. Van Harlingen, who recognized the nature of the disease, but humanely refrained from telling the patients. A few weeks ago he read a paper at the County Medical Society, in which these cases were described, and one patient was shown to the members. The affair, of course, became public; the daily papers took up the matter, and the Board of Health requested Dr. Van Harlingen to give the address of the lepers, and added the disease to the list of contagious affections of which, under a penalty, notice must be given to the authorities. This Dr. Van Harlingen refused to do, and an unsuccessful attempt was made to send the mother and daughter back to Brazil. Ultimately Dr. Van Harlingen gave up the patients, and the Board fined him $100 for failure to comply with the By-law. The lepers are now in strict confinement in the Municipal Hospital, and have been made aware of the nature of their terrible disease. A number of prominent physicians, feeling that Dr. Van Harlingen has been rather hardly treated, have subscribed to pay the fine, and in their letter have reflected upon the action of the Board.

From time to time we hear of lepers reaching this country, either from Norway, the West Indies, or from China, and it becomes a very important question how to deal with such cases. Up to a few years ago, opinion was very strongly against the contagious nature of the disease, but since Hansen's discovery of the lepra bacillus, facts have been accumulating to show that the virus is a fixed contagion, communicable by inoculation, like syphilis and glanders. Yet, so recently as 1881, after reviewing the literature of the world, Hirsch wrote in his *Geographical Pathology*, that "the communicability of leprosy has not been proved hitherto by a single unambiguous fact." It is impossible, however, to deny the contagious nature in view of the facts brought out by Graham, of Toronto, in his investigation into the Tracade lepers of New Brunswick, and by Besnier, of Paris, in a recent article.

In countries where the disease is prevalent, measures for isolation are gaining in favor, and in the Sandwich Islands segregation is said to have notably diminished the number of cases. The gradual disappearance of the disease in Europe was due in great part to the strict measures of isolation, and some idea of its prevalence may be obtained from the fact that more than 130 lazarettos and asylums are known to have existed in England and Scotland during the middle ages.

Having a fixed virus, and transmitted by inoculation only, the risks of contagion from isolated cases in a community are not great; indeed, so far as we know, in not a single instance has the disease been communicated to a native American by the cases which have come to this country from Norway, Brazil, or China. Patients are admitted to the hospitals without any greater fear than pertains to syphilis. While sympathizing then with Dr. Van Harlingen in his endeavor to keep from his patients the knowledge that they were lepers, we must acknowledge that the Board was right in theory in declaring the disease to be contagious, but in isolating the patients in the Municipal Hospital they have taken a very extreme view of the dangers likely to follow from the presence of one or two lepers in our midst.

CREOLIN, A NEW ANTISEPTIC.

THIS new antiseptic is obtained from coal tar by certain secret processes, and has lately been tried, quite thoroughly, in a purely experimental line, in Germany, by ESMARCH, whose results are recorded in the *Centralblatt für Bakteriologie und Parasitenkunde*, Bd. ii., 10 and 11, and by KORTUM in a more practical manner in the *Berliner klinische Wochenschrift* of November 14, 1887. Both Esmarch and Kortum report such favorable results from its use that no doubt, long ere this, many German surgeons are putting it to a practical test.

Esmarch in his experiments, made with different forms of microörganisms, found that a 1 to 5 per cent. solution of creolin acted promptly in destroying all their power, even when the spores were dry, in from ten minutes to four days according to the variety of microbe and method of exposure, and the strength of the solution of creolin. Kortum found that in several obstinate cases with stinking pus with ulcers as large as an adult's hand, in eight days the healing advanced so rapidly that only a granulating surface 2⅓ inches long by ⅓ of an inch wide remained. Other cases progressed as favorably with other lesions with the use of the drug, and if further experience with the substance brings forward facts in support of the statements, chiefly made by Kortum, creolin must immediately take a position side by side with iodoform, or even more powerful antiseptic dressings.

It is described as a dark brown liquid, of tarry smell and oily appearance. When mixed with water it is at first rather clear, if not stronger than a 1 to 1000 solution, but afterward becomes the color of coffee with milk in it. It may be used as all other liquid antiseptics, by ordinary measures or on tampons.

HEMIPLEGIA AND HEMIEPILEPSY IN RENAL DISEASES.

THE clinical maxim formerly accepted by all and often invoked in cases of doubtful diagnosis, that limited palsies and circumscribed convulsions do not occur in cerebral uræmia, is subject to exceptions that have recently rapidly increased in number.

In addition to the cases of so-called uræmic hemiplegia recorded by Carpenter, Pätsch and Jäckel, Raymond has recently collected six instances of interstitial nephritis, in aged persons, in which apoplexy, hemiplegia, or partial convulsions occurred without any other discernible cerebral lesion at the necropsy than atheroma of the arteries and a more or less prominent œdema. Almost at the same time Chantemesse and Tenneson published a paper based upon the analysis of five cases of diffuse nephritis in which analogous nervous phenomena had occurred. A little later—*Gazette Médical de Paris*, November, 1886—Florand and Canniot published two cases of the same kind observed in the service of Raymond. Within a few weeks F. X. Dercum has reported two cases of this kind at a meeting of the Neurological Society of Philadelphia, which were published in these columns. Not all these cases are of equal value. Several of them are too complex, too obscure to be looked upon as possessing value as proof of the causal relationship between uræmia and these accidents of cerebral origin. But the fact stands that in uræmia, or, to speak more precisely, in renal disease, both localized paralyses of hemiplegic character and circumscribed epileptiform attacks are met with in the absence of any gross lesion of the encephalon.

These various phenomena are encountered in subacute and acute nephritis; especially may we look for them in chronic interstitial nephritis. The stage of the disease is usually an advanced one, in which uræmic manifestations have already made their appearance; but they have also occurred at a time when no other symptom characteristic of uræmic intoxication had yet shown itself. In some instances they have been preceded or followed by marked stupor or coma; yet again they have suddenly appeared without prodromes and unaccompanied by any other symptoms of cerebral disturbance.

Complete or incomplete motor hemiplegia limited to the extremities, or invading the face, may persist without perceptible alteration till death, or it may gradually improve, sometimes finally to disappear, sometimes to recur at a later period. The latter cases resemble the hemiplegia due to cortical softening from thrombosis. The motor hemiplegia is often associated with a hemianæsthesia, usually of less degree, but likewise variable and liable to the same fluctuations. Chantemesse and Tenneson noted in two cases conjugate deviation of the face and eyes. The partial epilepsy observed in these cases presents the well-known traits of Jacksonian epilepsy. Sometimes it is to be noted that the attack alternates, predominating now on one side, now on the other.

It is a remarkable fact, especially in view of the presumed dependence of these accidents upon uræmia, that there has been observed in a number of cases a high degree of fever. In one instance the temperature just before death reached 105.8° F.

Beyond the variability of the symptoms and the presence of albuminuria, there is nothing at all in the clinical aspect of certain of these cases to warrant us in attributing them to uræmia. Even the presence of albumin in the urine has only a relative value, in view of the fact that albuminuria is by no means rare in advanced senile atheroma. The difficulties of diagnosis are enhanced in cases of latent interstitial nephritis. The clinical picture is that of local cerebral softening, especially in an aged

person with atheromatous arteries. At the necropsy no cerebral gross lesion is found, but the arteries are atheromatous and there is œdematous swelling of the cerebral cortex varying in degree and extent.

What the pathology of these paralyses and localized convulsions may be it is difficult to say. The greater number of authorities attribute them to cerebral œdema of uræmic origin. Others invoke disturbances of the encephalic circulation due to alterations of the lumen of atheromatous arteries and pressure upon vessels. These explanations will scarcely serve. They are too general. Moreover, in many of the cases no mention is made of cerebral œdema, and in those in which its presence is recorded, it is described as a diffuse general condition to which alone hemiplegic phenomena cannot well be satisfactorily ascribed. Must we then, with Chauffard, invoke a uræmic intoxication capable of directly influencing or destroying the functions of the cerebral cells?

This view must be accepted in explanation of certain of the cases. It will not, however, serve for those in which the cerebral manifestations are unattended by uræmic symptoms of any kind; in which they happen in an individual subject, it is true, to chronic nephritis, but in no sense uræmic.

If, then, the semeiology of the cerebral accidents of patients suffering from disease of the kidneys is as yet only roughly sketched out, their pathology remains altogether obscure. The clinical facts are, however, established upon a firm basis, and it may even be questioned whether or not many attacks of hemiplegia and localized convulsions attributed in the absence of post-mortem examination, to local brain lesions, may not have been of this nature. L. Dreyfus-Brisac (*Gazette Hebdomadaire*, Oct. 7, 1887) has in two cases of hemiplegia attributed to nephritis, observed the disappearance of the manifestations of cerebral lesions coincidently with improvement, under an appropriate régime, in respect of the albuminuria, the digestive troubles, and the dropsy.

MEDICAL LITERATURE.

DR. SKENE, in his characteristically able inaugural address at the last meeting of the American Gynecological Society, stated that during the past eight years, 804 books and 7505 journal articles and pamphlets had been added to the literature of gynecology. An inference may be drawn from this of the increase of medical literature in general. The question naturally arises whether this *embarras des richesses* is an unquestionable gain. It indicates, it is true, a wonderful diffusion of printed matter among a limited number of individuals, constituting one of "the learned professions," who, as a rule, lead exceptionally busy and useful lives. This being the case, they have a right to demand of those who purvey to their intellectual wants material which shall be digestible, assimilable, and calculated to insure healthy growth.

A survey leads us to the conclusion that the multiplication of journals has been entirely out of proportion to the demands of the profession, and that the majority of them, like too many of our younger institutions of learning in this country, are leading anything but a vigorous existence, their chief object being, apparently, to satisfy the ambition, of those concerned in their projection. Herein lies a grand indication for reform. Not that we desire to have *less* literature diffused, but *better*. This can be accomplished in several ways. One is concentration; the value of which is apparent enough, if one will but recall the most successful agencies around us for the advancement of knowledge, charity, or commerce. Another, is a more rigid censorship. With two hundred and more hungry editors, eager to grasp at anything which is offered, anything to fill their columns, no matter how immature, how unskilfully arranged, or how inconclusive, what wonder is it that complaints are constantly made of the valuelessness of a very large portion of the current medical literature? It is as ephemeral as the mist before the rising sun. Very aptly does Dr. Skene remark in the address to which allusion has been made, "this multitude of gentlemen, who write more than they read, 'scatter like deer at the sound of the hunter's horn' when compelled to defend themselves in public discussion before a tribunal of competent judges in well-regulated medical societies."

Another means by which the overproduction in medical literature may be checked, is by making the terms between author and publisher analogous to those which obtain in all ordinary business enterprises, a *quid pro quo*. The inducement held out by the majority of publishers to write for glory, with perhaps a score of reprints thrown in, is about as unfair and unreasonable, not to use a harsher term, as anything can be—to the author, if his contribution is worth spreading before the public; to the public, who pay their money to the publisher, if it is not worthy. The excuse that long established custom sanctions such a procedure, is an unworthy one. Custom sanctions many an abuse, which is none the less an abuse. It is noteworthy that there are a few high-minded publishers who do not follow this course, but pay liberally for all contributions as is the custom with THE MEDICAL NEWS. In general literature, those journals earn the largest profits which pay their contributors most handsomely. Why would not the same rule apply equally in medical literature? It would lead to the decrease of many current publications—no doubt to a process of consolidation among some of the survivors, to a merciless sifting of wheat from chaff, and to more care and painstaking on the part of authors. All of which

would conduce to the general improvement of medical literature.

DR. H. C. YARROW, of Washington, has been experimenting recently with a view to determine the value of certain reputed antidotes to serpent venom. All of them, thus far, in his hands have proved valueless with the exception of the fluid extract of jaborandi, which seems to possess antidotal powers, at least in the case of mammals, but upon fowls it appears to have no such effect. Dr. Yarrow has given hypodermatically to rabbits four-fold lethal doses of crotalus venom, and then, by the administration of 35 minims of fluid extract of jaborandi, he has prevented any serious results.

The use of jaborandi as an antidote to venom poison was, we believe, first suggested by Dr. Josso, in the *Gazette Hebdomadaire de Médecine et de Chirurgie*, Paris, 1882, vol. xix. p. 835, and in this communication he reported a case of viper bite cured with an infusion of the leaves.

THE State University of Nebraska has established at Lincon a patho-biological laboratory for original research into the nature and causes of the contagious and infectious diseases of animal life. It has a general working room, supplied with all the necessary instruments and books of reference; a cultivating room; an autopsy building; and a room for raising and keeping the small animals generally used in experimentation. The laboratory is under the charge of Dr. Frank S. Billings.

The Lancet of December 3d states that Sir Morell Mackenzie continues to receive highly satisfactory reports regarding the present condition of the Crown Prince of Germany. The slight enlargement of the left submaxillary gland which took place at the end of October was followed by a similar swelling on the opposite side after the occurrence of œdema in the early part of November. Considerable diminution has taken place in both these swellings. Sir Morell Mackenzie considers that in view of the fact that there has been no actual microscopic proof of the existence of cancer, the diminution in the size of these swellings is not without a certain degree of clinical importance.

REVIEWS.

A PRACTICAL TREATISE ON MATERIA MEDICA AND THERAPEUTICS. By ROBERTS BARTHOLOW, M.A., M.D., LL.D., Professor of Materia Medica and Therapeutics in the Jefferson Medical College of Philadelphia. Sixth edition, revised and enlarged. 8vo. pp. xxiv. 802. New York: D. Appleton & Co., 1887.

THE appearance of the sixth edition of Dr. Bartholow's book on therapeutics at such an early date shows that it still retains its favored place among American text-books. The profession in general are so well acquainted with the work that it is only necessary to call attention to the appearance of this latest edition.

The articles on the newer remedies of value, such as antipyrine, antifebrin, and salol for example, are quite full, yet their literature is growing so rapidly that important contributions have appeared since this portion of the book passed through the press.

We note the statement that antifebrin acts as an antipyretic by reducing the "ozonizing function" of the red blood-corpuscles, but the only evidence brought forward to support it is that toxic doses of the drug have been found to alter the oxyhemoglobin; yet on the preceding page it is distinctly stated that "there are important differences in the action of moderate medicinal, and of toxic doses, but the effect of the latter on the blood globules introduces a special pathogenic influence which must change the character of the symptoms produced." So far as we know at present, no one has proved that the antipyretic effect of this drug depends on its action on the ozonizing power of the blood any more than it has been proved that quinine does the same thing.

The book has undergone very thorough revision, and stands as a typical representative of American thought and thoroughness, and will continue a favorite with a very large class of medical practitioners.

OPERATIVE SURGERY ON THE CADAVER. By JASPER JEWETT GARMANY, A.M., M.D., F.R.C.S., Attending Surgeon to Out-door Poor Dispensary of Bellevue Hospital, etc. 8vo. pp. ix. 150. New York: D. Appleton & Co., 1887.

THIS work is well adapted to fill the niche for which it was written, but the niche must be a very shallow one. We cannot conceive of any one wanting an operative surgery for the dead room, which must lose its value so soon as it leaves that room. But, while we would far prefer one of the manuals which treat of operations upon the living, there may be those who think differently from us. All such we would advise to invest in this book. They will find it well written, its directions explicit, clearly expressed, and based upon well established precedents and admitted rules of practice.

SOCIETY PROCEEDINGS.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, December 9, 1887.

THE PRESIDENT, JAMES PERRIGO, M.D., IN THE CHAIR.

DR. BELL exhibited a specimen showing

THE DEVELOPMENT OF BONE FROM PERIOSTEUM.

It was a section of the shaft of the femur from a patient whose thigh had been amputated ten days after receiving a compound comminuted fracture of the lower end of the femur and the head of the tibia, opening the knee-joint. Extensive sloughing had occurred, and at the time of the operation the patient was in a sapræmic condition, due to the absorption of putrid material from

the necrotic tissues. Twenty-five days later it was found necessary to reamputate two and one-half inches of the end of the femur because it was exposed, owing to sloughing of the flaps. At the primary amputation the periosteum had been stripped from the bone to the extent of nearly an inch above the point where the femur was divided. The bone removed at the secondary operation showed an undoubted development of bone in the periosteum thus detached.

DR. SHEPHERD said this case was most interesting in connection with the views lately given by Dr. Macewen, of Glasgow, in the October and November numbers of the *Annals of Surgery*. That authority held that periosteum does not initiate the reproduction of bone. In Dr. Bell's case the periosteum had certainly developed bone. He had no doubt, however, as to the correctness of Dr. Macewen's views when he states that periosteum is not the chief factor in the reproduction of bone, this function being performed by the soft tissues enclosed in the osseous tissues.

DR. MILLS regarded the specimen as illustrating the fact that Nature accomplished her ends in various ways —he also said that experiments on animals, etc., often led to false conclusions because of the disturbance of natural processes, but in cases such as the one related, Nature was not interfered with, and the processes were not artificial. Pathology often threw a bright light on physiology and helped to explain many obscure points.

PURULENT MENINGITIS.

DR. JOHNSTON reported a case which had been under the care of Dr. Molson, and in which he had performed an autopsy. Patient was a healthy woman, who, whilst in the sixth month of pregnancy, fell and struck her head. She developed soon after brain symptoms, deviation of the eyes, flexion of the neck to one side, and active delirium. She was admitted to the General Hospital, miscarried, and some days after died. At the autopsy, the ovarian veins were distended but patent, the renal veins free. There was severe parenchymatous nephritis with slight interstitial nephritis. Spleen and liver enlarged and soft. Uterus enlarged, cavity dilated, placental site free from inflammation. On the right side there was purulent meningitis of the inner surface of the pia mater extending to the base in the middle and anterior fossæ of the skull. There was thrombosis of the right lateral sinus and inferior petrosal sinus. No fracture of the base of the skull was found but there was purulent otitis media of the right side with pus in the mastoid cells. The tympanic cavity was covered with granulations. In this case there was no history of ear trouble. Dr. Johnston had no doubt that the otitis was the cause of the meningitis, and that the fall a short time previously had very little to do with the fatal result of the case.

DR. H. L. REDDY related a case of

RUPTURE OF THE HEART.

The patient, a man, aged sixty-eight, had always been in good health. A week ago he left his house at 5 A. M. to go to his work; and whilst going down stairs was seized with severe pain in his chest, after walking a few hundred yards he found the pain so severe that he had to return home. A physician was sent for, who examined him, and found nothing apparently wrong. When Dr. Reddy saw the patient, some hours after, he had vomited once and complained of severe pain in the epigastrium. Pulse normal, and no symptoms pointing to the heart. He gave him a quarter of a grain of morphia, which relieved the pain. A second dose of morphia, a few hours after, completely removed the pain, and then he seemed perfectly well; four days later, whilst sitting in his chair, he suddenly threw back his head and instantly died.

At the autopsy, Dr. Johnston found the following conditions: Pericardium moderately distended with blood, on opening the sac blood and clot to the amount of ten ounces were found, the clot forming a complete mould around the heart. A small laceration, one-half inch long, was found in the anterior wall of the left ventricle, one inch to the left of the septum, surrounded by an area of ecchymosis. On opening the ventricles, the left was nearly empty, endocardium normal, but at the spot of rupture, in separating the trabeculæ, an area of softening was seen through which a bristle readily passed. On transverse incision through the laceration, a thrombosed vessel was seen surrounded by a soft yellow area of necrotic muscle. Subpericardial fat in excess, but heart muscle not fatty on microscopic examination. There was no extreme atheroma of coronary vessels, or systemic system, and no varicose veins of the extremities.

DR. W. G. JOHNSTON exhibited some microscopic specimens of

MUCOUS POLYPI

from the nose. In eight cases the stage was an early one and the condition was strictly that of adenoma of the nasal mucous glands. In those where the stage was later, the cell outlines had disappeared, leaving only areolar tissue infiltrated with mucous fluid. This secondary change, Dr. Johnston said, was probably the reason why these growths were commonly, but wrongly, called myxomata of the nose, and confused with true myxomata, which are tumors of quite a different nature, originating in connective tissue.

DR. SHEPHERD read a paper on a case of

SUBDIAPHRAGMATIC ABSCESS.

(See page 700.)

DR. RODDICK thought that it was not improbable that the case originally had been one of empyema; that the pus had ulcerated through the diaphragm, and got between that structure and the liver.

DR. G. ROSS said that the explanation offered by the last speaker was an ingenious one, but not practicable. The anatomical structure of the parts did not give any likelihood to the supposition. The case had probably been originally one of subdiaphragmatic peritonitis which had become localized. We may have a pleurisy following a subdiaphragmatic inflammation without perforation of the diaphragm, but that such a small opening as would naturally result from an ulcerating empyema could completely drain the pleural cavity and collect below the diaphragm, was not probable. Any empyema would surely come forward more readily than downward.

DR. WILKINS said that when he first saw the case the probability of its being an empyema occurred to him, but he, for various reasons, discarded this idea. From

the early history, jaundice, etc., he was inclined to regard the case as one of abscess of the liver; but against this was the total absence of a history of fever, rigors, or sweating. He had now no doubt that the case was one of abscess between the liver and diaphragm. One feature about the case was the apparently slight amount of pain which pressure on the tumor caused.

DR. SHEPHERD, in reply to Dr. Roddick, said that not one symptom in the early history pointed to an affection of the pleura; the pain was always below the costal cartilages of the right side, and there never was any cough or difficulty of breathing. At the time of the operation there was no pus in the pleural cavity. Fluid always finds its way in the direction where there is the least resistance, and this is certainly not in the direction of the diaphragm. In his experience the pus in empyema always pointed in the neighborhood of the nipple, and when it pointed elsewhere it did so by burrowing beneath the tissues external to the lung wall of the thorax, after perforating an intercostal space.

DR. FENWICK exhibited five calculi which he had recently removed from four patients by

LATERAL LITHOTOMY.

Two cases were in men of middle age, one in a youth aged twenty, and one in a man aged sixty-nine. The last case had been a very difficult one, on account of the great depth at which the bladder was placed and the narrowness of the outlet of the pelvis. The stone was large and composed of uric acid. The patient had, after the operation, a curious diphtheritic-looking patch in the throat, and the wound at the same time had a very unhealthy appearance. The patient, however, ultimately did well. The urine ceased to flow from the wound on the thirty-fourth day. In the three other cases the urine ceased to come from the wound on the sixteenth, eighteenth, and twentieth days, respectively. In the first of these cases, where two uric acid stones had been removed, the man went home well on the twenty-first day. In all but one case a soft catheter had been introduced into the bladder to drain off the urine.

DR. RODDICK exhibited

EIGHT LARGE CALCULI,

which he had removed from an old gentleman, in the summer, by the lateral operation. The stones weighed two and a half ounces. At the time of the operation the patient was in a very bad state of health, and there was considerable pus in the urine. He died some days after the operation of uræmia. No doubt his kidneys were diseased. No autopsy was allowed. In this case the suprapubic operation had been thought of, but the lateral was preferred, on account of the small capacity of the bladder, which would hold only two ounces of fluid.

DR. R. L. MACDONNELL related a case of

RECOVERY IN CIRRHOSIS OF THE LIVER,

where ascites had been present to a very great extent. The patient, a woman, aged thirty-five, married, but childless, was admitted to the Montreal General Hospital in August, 1885, with a large quantity of fluid in the abdomen. She had suffered during the past year from dyspeptic symptoms, with morning vomiting. There was a history of spirit drinking. Prior to admission she was tapped to the extent of 200 ounces. There was tenderness over the hepatic region. The liver was small, measuring three inches in the right mammary line. She remained in the hospital for ten months, being tapped at first every two or three days, but subsequently at longer intervals; the amount drawn off being at first 180 to 200 ounces, but at the time of her leaving the hospital but 16 to 20 ounces could be obtained. She was tapped sixty times during the year, and taking 150 ounces as an average, altogether 8500 to 9000 ounces were removed. The woman had now gained health and strength, and was apparently well and attending to her household duties. The liver is much the same size, the abdomen now contains no fluid, and the dyspeptic symptoms have disappeared. Dr. MacDonnell said that the total amount of fluid removed in a year was large considering the patient's weight (125 pounds) and size. Much larger quantities have been taken away, but the case is instructive as illustrating the benefit to be derived from paracentesis in cirrhosis.

DR. WM. GARDNER gave the subsequent history of a case of

DERMOID OVARIAN CYST IN A PREGNANT WOMAN,

which he had removed last February, and which he had reported at the time to the Society. The case was one of twisted pedicle, with severe peritonitis. He had removed the cyst and both ovaries, washed out the abdominal cavity, and left a drainage tube in the wound for five days. At the time of the operation the uterus looked large and discolored, and he had suspected pregnancy. Eight months after the operation she was delivered of a healthy child. He thought it remarkable that the pregnancy should have gone on to full term, after the peritonitis, washing out of the abdomen, and drainage, as well as the removal of a large cyst. This was the second case in which he had removed an ovarian tumor in a pregnant woman who had subsequently been delivered of a child at full term.

DR. JAMES C. CAMERON read a paper on

THE DANGERS AND ACCIDENTS OF LOCAL TREATMENT IN PUERPERAL CASES.

He began by saying that the introduction of antiseptics had revolutionized the practice of midwifery, so that results, impossible anywhere a few years ago, are now obtainable. Still the use of antiseptics in midwifery had been abused. Uterine and vaginal douches properly administered in suitable cases are invaluable, but otherwise they may prove dangerous. The opinion appears to prevail among the profession that while the intrauterine douche is generally safe, the vaginal douche is perfectly so, and not unfrequently we find the operation entrusted to the nurse or some unskilled person, as if douching were a trivial matter. Dr. Cameron said that he believed that prophylactic douching during the puerperal state is not only unnecessary, but harmful. He was convinced that the douche is not perfectly harmless, and that it should be used with caution. The chief danger of the douche is in absorption through tears, fissures, or other traumatism. He thought absorption is more liable to take place through the

vagina than through the uterus, because the latter usually contracts fairly and empties its contents. The author of the paper held that the intrauterine douche is more dangerous than the vaginal, because fluid may be forced through the Fallopian tubes into the abdominal cavity, causing peritonitis, as in Völtz's case, or a thrombus may be dislodged from the placental site, and hemorrhage take place; again, air may find its way directly through the uterine sinuses into the veins. He had seen sudden death occur during an intrauterine injection of perchloride of iron for post-partum hemorrhage. Warm water alone should be used when it is necessary to wash away *débris;* in septic cases corrosive sublimate solution is far the most effective, but also the most dangerous. Death has occurred in sixty hours from the effects of an introduction of a sublimate douche (1 : 2000). Patients suffering from anæmia or kidney troubles are very susceptible to the action of mercury; so, too, are those who have recently been under mercurial treatment, or in whom there is a marked atony of the uterus, or extensive traumatism of the genital tract.

To avoid the dangers and accidents incident to injections in puerperal cases, the author said that

(1) The patient should always be placed across the bed in the dorsal position, with hips well raised and thighs everted. In this way, in intrauterine injections, the anterior lip can be more easily seized, and the intrauterine cavity straightened.

(2) The vaginal or uterine nozzle should be inflexible, without a central orifice in the bulb. The openings should be directed slightly backward, so that the injection stream may flow away from the fundus, not toward it.

(3) A sufficient outflow should be secured by keeping the vaginal orifice open. Before an intrauterine douche is given the anterior lip should be seized with a tenaculum, and drawn gently downward until the uterine cavity is straightened.

(4) The quantity of fluid injected should be small (1–2 quarts).

(5) Antiseptic injections should be weak. For an ordinary vaginal douche a sublimate solution of 1 : 5000 is quite strong enough. The stronger solutions should only be used in urgent septic cases. After sublimate injections a pint or two of plain hot water should be employed to wash away any retained sublimate, thus lessening risks of absorption.

(6) The injection should always be used hot (110°–112° F.), for hot water is a powerful stimulant, causing the uterus to contract and expel its contents.

(7) To prevent nervous chill and rise of temperature a glass of brandy, or some diffusible stimulant, should be given fifteen minutes before operating.

(8) During the more severe methods of intrauterine treatment, such as curetting or brushing, the placental site is apt to be disturbed, thus allowing the entrance of air, fluid, or septic matter, so these methods should be at once followed by a small douche of hot water; after which a bolus of iodoform should be passed into the uterine cavity, and the vagina should be packed with iodoform gauze.

DR. BLACKADER said he would like to ask the reader of the paper under what circumstances he now advised curetting, and whether he would perform this operation whenever there were any septic symptoms present. He thought that injections should not be given too hot, for he had seen serious symptoms follow the employment of very hot injections, peritonitis even had resulted from the injection of plain hot water.

DR. WILLIAM GARDNER also condemned the use of too hot injections, and the employment of a syringe with a nozzle with a central opening; he related one case of a woman with prolapsus uteri, who, when employing hot water injections, used such a nozzle. The injection was followed by vomiting and severe pain. Then the case went on to pelvic peritonitis, from the effects of which the woman still suffered. He could mention other cases where serious results had followed the use of injections properly administered.

DR. RODDICK said he was cognizant of not a few cases where serious results had followed the injection of solutions of bichloride of mercury; he thought Condy's fluid a safer antiseptic; but, best of all, is hydronapthol; it has germicidal qualities nearly equal to the bichloride, but no odor or irritating qualities, and there is no danger of poisoning.

DR. MILLS asked whether the danger of absorption is great from the vagina or uterus.

DR. CAMERON, in reply, stated that the value of curetting, in suitable cases, is unquestionable, viz., where portions of the placenta are retained; the brushing out of the uterus would not, in some cases, replace curetting. The danger of absorption is greater through the vagina than the uterus, for the injected fluid, owing to the greater tendency of the vagina to sacculate, remains longer in contact with the absorbing surface. He had written this paper as a protest against the indiscriminate and careless use of injections in the puerpera state.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, November 23, 1887.

THE PRESIDENT, J. SOLIS COHEN, M.D., IN THE CHAIR.

DR. EDWARD JACKSON read a paper on

GLEDITSCHIN, SPURIOUS AND GENUINE.

In publishing his observations on the action of the so-called stenocarpine (in THE MEDICAL NEWS of September 3, 1887), he stated: "In studying the action of this drug, one cannot but be struck with its similarity to that of cocaine. . . . This similarity of action raised in my mind the question, whether this new drug possessed any power which would not be possessed by a solution of cocaine to which had been added a portion of one of the stronger mydriatics, as duboisine or hyoscyamine." It seemed to him then, however, that the drug did "possess certain powers, in degree at least, peculiar to it. My impression is that the solution used, said to be a two per cent. solution, is a more powerful anæsthetic than the four per cent. solution of cocaine." He also thought that while its influence over the accommodation was more powerful than that of homatropine, that the recovery of the accommodation from its effects was more rapid than from any previously known mydriatic, except homatropine.

In this last respect he soon found he had been in error. A few days after that paper was published he came

across the records of some experiments which he had made nearly six years ago, and some of the results of which he reported in a paper read before the Medical Society of the State of Pennsylvania in 1882; and among them some trials of weak solutions (1 to 1000 and 1 to 2000) of duboisine and hyoscyamine in his own eyes, where the recovery corresponded exactly to the recovery observed after the use of the alleged new drug. This discovery redoubled his suspicions. He then took twenty-five grains of the solution, dried it over sulphuric acid, and weighed the residue, which he gave to Dr. Henry Leffmann, who dried it still further, and weighed it again; its weight, as reported by him, was 1.62 grains. This demonstrated that the so-called two per cent. solution of "stenocarpine" was not what it purported to be.

In his paper, before referred to, he objected to the name stenocarpine as probably not indicating the real source of the drug, and pointed out that Mr. Goodman's description of the tear blanket tree corresponded with that of the *Gleditschia triacanthos*, or honey locust; and stated that "extracts made from the leaves of the honey locust growing near Philadelphia, failed to exhibit any anæsthetic or mydriatic properties." About the same time he wrote to Mr. Goodman asking for specimens of the leaves; and he promised them, but they have not yet been received. Soon after this, however, he obtained specimens of leaves from Jefferson County, Texas, which were pronounced those of the honey locust by Dr. J. T. Rothrock, Professor of Botany in the University of Pennsylvania, who had been the first to suggest to him that the honey locust might be the tree described. These leaves proved as inert as those obtained in this vicinity.

Shortly after this, Dr. J. H. Claiborne published in the *Medical Record* of October 1, 1887, a detailed and illustrated account of the honey locust; stating that Mr. Goodman and Dr. Seward had fully identified it, as the source of the new local anæsthetic, and proposing therefore, to call the "new" alkaloid Gleditschin. The publication of the above facts indicating the fraudulent character of the "stenocarpine" solution was delayed until some of the genuine Gleditschin could be studied. But, simultaneously, Mr. F. A. Thompson, in the *Medical Age* of October 25th, and Dr. John Marshall, in THE MEDICAL NEWS of October 29th, published analyses of the alleged stenocarpine-Gleditschin solution, by which the fraud was fully exposed. They proved that unquestionably the solution contained cocaine and a member of the atropine group. The latter is not, however, atropine itself, as might be inferred from their papers; but on account of the brevity of the paralysis of accommodation it produces, must be, Dr. Jackson thinks, hyoscyamine, duboisine, or daturine.

In the *Philadelphia Medical Times* of November 23, 1878, Dr. Lautenbach published a brief communication entitled "Gleditschin—A New Alkaloid," with the promise that "in a later publication this subject will be treated of more fully." The promise remained unfulfilled, doubtless on account of his early death.

After reading his account of the substance clearly entitled to the name Gleditschin, he endeavored to obtain some of the unripe fruit, in which, according to Dr. Lautenbach, the drug is to be found. With some difficulty and after considerable delay, a peck of the fruit was obtained, but the pods and seeds were most of them very nearly mature. However, Mr. James A. Kyner, Demonstrator of Chemistry in the Polyclinic, following in the main the method of Dr. Lautenbach, obtained from them a very small amount of a solution of what we believe to be the sulphate of the true Gleditschin. On evaporation it deposits crystals of a narrow rhombic form. When ammonia is added it gives a precipitate, which presently crystallizes in broader rhombs. On the frog it produced the symptoms narrated by Dr. Lautenbach, though his supply of the solution gave out before the stupor was complete. The symptoms reached their height in fifteen minutes after the hypodermatic injection of the solution, were passing off in an hour, and had disappeared entirely in less than three hours. *This solution freely applied to the conjunctiva produced no anæsthesia, or dilatation of the pupil, whatever.*

The analyses and tests above referred to, with several others that have since been published, have pretty well disposed of the alleged new local anæsthetic and mydriatic; and Gleditschin has lost its interest for the ophthalmic surgeon. But the incident, disagreeable as its ending may have been to some, is not without its useful lessons.

First. It is shown that such a fraud cannot be carried far, even with a drug as difficult of positive chemical identification as cocaine. And every such attempt at fraud can only make more brief the period, and decrease the profit, of succeeding attempts.

Second. It has been demonstrated that cocaine can produce anæsthesia through the unbroken skin; although he had pointed out (loc. cit.) that this is extremely superficial; and "To make a painless incision in tissues anæsthetized in this way, one must do it by repeated superficial cuts with the knife, keeping all the time the cut surface bathed with the solution."

Third. Attention has been drawn to the *Gleditschia triacanthos*, and the genuine Gleditschin discovered and studied nine years ago by Dr. Lautenbach, but recently in a fair way to be forgotten. And in the direction of a further study of this substance lies the probable path of profitable future investigation. The leaves have been proven practically inert, and for several months it may be impossible to obtain specimens of the unripe fruit. But other parts of the plant might be tested for it. In the *Medical Age* of November 10th Dr. Crull states that he has cured gleet with a decoction of the bark of the root of the thorny honey locust (the more common variety), and that taking a tablespoonful of the decoction himself "caused nausea, giddiness, dimness of sight, cold perspiration, and a prickly or smarting sensation of the tongue and throat. These symptoms continued for nearly three hours, when they gradually abated. The evacuation of the bowels the following morning was very bilious and watery."

CORRESPONDENCE.

COCAINE MURIATE IN UNCONTROLLABLE VOMITING.

To the Editor of THE MEDICAL NEWS,

SIR: Though my experience with the new anæsthetics has been comparatively limited, yet I have found cocaine muriate of signal service in a few cases of ob-

stinate vomiting of pregnancy, and in one of uncontrollable vomiting.

Mrs. H. came under my care in August, in consultation with Dr. Ceist. He had been using a combination of cerium oxalate with ingluvin, in proportion of gr. v. of the former to gr. x of the latter, which for a time gave relief. When I was consulted regarding the patient she had retained no food for five days, and was threatened with starvation. I recommended quarter grain doses of cocaine in combination with subnitrate of bismuth and acid. carbolic., with mucilag. acaciæ, to be taken thirty minutes prior to some light nourishment. The patient has had very little trouble since. The cocaine was soon withdrawn, and the case progressed nicely.

It must not be forgotten, in connection with the case, that prior to the pregnancy just spoken of, two abortions were performed to save the patient from starvation.

Very respectfully,

W. D. JONES, M.D.

RICHFIELD, KAN., Dec 8, 1887.

NEWS ITEMS.

CHOLERA IN SOUTH AMERICA.—Health authorities at our ports of entry should bear in mind the fact that Asiatic cholera has reappeared in South America. Reports published in the Panama *Star and Herald* show that in October the disease broke out afresh in Chili. On October 22d there were 14 cases in the small city of Chillan; on the 23d 28 cases and 16 deaths, and on the 24th 16 cases and 6 deaths. Last year the disease did not appear in Chili until the second week of November, but now it has come before the arrival of warm weather. On November 26th Peruvian ports were closed against vessels from Chili.

A CONGRESS FOR THE STUDY OF TUBERCULOSIS.—A congress of physicians and veterinarians for the study of this subject will be held in Paris, near the quarters of the Faculté de Médecine, from July 25 to July 31, 1888. Professor Chauveau is announced as president, and the other officers will be distinguished members of the Paris faculty and eminent veterinarians. One day will be devoted to the study of anatomical preparations, in the laboratory of Cornil; another will be given to the examination and dissection of tuberculous animals, at the veterinary school at Alfort. French and foreign physicians and veterinarians may become members on the payment of ten francs ($2), and entering their names; they may then take part in the discussions.

The proceedings and results of the congress will be published, in French, in a volume of Transactions and in the journals.

The origin, contagion, diagnosis, and treatment of tuberculosis will receive the most thorough study. Information regarding communications to be offered may be sent to PETIT, Secretary-General, 11 Rue Monge, Paris.

THE RESULTS OF MEDICAL LEGISLATION IN INDIANA.—The Secretary of the Indiana State Medical Society reports in the *Medical Standard* for December, 1887, that the law, imperfect as it is, has done much good. It has reduced the number of physicians from 4695 to 4136, thus weeding out over 500 pretenders. It has driven others to take a second course of lectures and has forced others to take a first course of lectures and come in under the three years clause. It has driven from the State troops of long-haired, loud-mouthed, slouchy charlatans who made annual tours of the State, accompanied by cheap brass bands, gaily caparisoned steeds, and other paraphernalia calculated to deceive and impress the ignorant.

A HOSPITAL FOR EMPLOYÉS.—The Cambria Iron Company, whose works are near Johnstown, Pa., has recently erected a hospital for its employés; the sanitary arrangements of the building are described as follows by the *Sanitary News*: A noticeable feature is the ventilation. In the wall back of each bed in the principal ward and about nine inches from the floor will be a register through which the foul odors will be drawn into a duct to the fire where they will be consumed. This floor is of asphalt and can be flooded, the water passing off through deck plates in the centre of the room. While the hospital contains the essential features, there are many new and valuable points about it which recommend themselves to those interested in this class of buildings.

A COPY OF REMBRANDT'S "LESSON IN ANATOMY" AT THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.—Last week a very fine, full-size copy of Rembrandt's famous "Lesson in Anatomy" was presented to the College of Physicians by two friends of the College, at whose order it had been painted at the Hague, where the original is.

Rembrandt is said to have been inspired to paint this picture by a sentiment of gratitude toward Nicolaus Tulpius, Professor of Anatomy, at Amsterdam, who had protected him in his youth. Tulpius is represented with his disciples, of life size, grouped around a table, on which is stretched a corpse; some are seated, some standing, and some bending over the body, while he is demonstrating the anatomy of the arm, which is dissected. The light illuminates one side of the dead body, leaving in obscurity the dresses, the table, and the walls of the room, and the contrast between light and shadow is marvellous. There is, as a critic has said, in the complexion of the group an air of mystery, gravity, and scientific solemnity which inspires reverence and silence.

Rembrandt was only twenty-six years old when he painted this picture (1632), which, by universal judgment, is placed among the greatest triumphs of human genius.

A NEW HOSPITAL FOR TORONTO.—A subscription of $40,000 heads the list for a new hospital at Toronto. It is confidently expected that the remaining funds needed will be raised without difficulty.

THE ILLNESS OF THE EMPEROR OF BRAZIL.—From a correspondent of the *Revue Générale de Clinique et de Thérapeutique* of November 24, 1887, we learn that Dom Pedro, now aged about sixty-two, has been suffering for six or seven years with glycosuria which appeared after cerebral fatigue and disappeared after repose. During last February he was taken with more serious manifestations of his malady, while at his country place. After residing for some time in various parts of his kingdom he was sent to Europe, where he

visited Paris, Baden-Baden, and Cannes. It is probable that he will spend the present winter in Egypt and Algiers.

THE DETROIT CREMATORY is announced to be completed and ready for the use of the public.

DOCTORS IN RUSSIA.—A recent report of the members of the profession in proportion to the population in Russia gave one doctor to 18,000 people; this is the only civilized country where overcrowding is not present.

ACCIDENTAL INOCULATION IN A BACTERIOLOGICAL LABORATORY.—A Russian physician studying in Bollinger's laboratory at Munich, recently infected himself with anthrax, through a cut finger. Nussbaum thought best to extirpate his axillary glands at once.

OPENING OF THE PARIS CLINIC FOR CHILDREN'S DISEASES.—Grancher, of Paris, has enlarged and improved his clinic at the Children's Hospital, and has supplemented his own services by an auxiliary staff of specialists, whose service is upon the different days of the week. Facilities for laboratory work in histology, microbiology, chemistry, and photography, are fully provided.

PROFESSOR BOTKIN, Professor of Clinical Medicine in the University of St. Petersburg, and physician to the royal family of Russia, is at present the guest of the physicians of Paris.

PATENT MEDICINES. — Pharmacist Painter, in the *American Druggist*, states that there are 36,500 proprietary medicines in the market. He considers them utterly unworthy of physicians' sanction, and thinks that medicine and pharmacy have been materially injured by them.

AN INSTITUTE FOR CHRISTIAN SCIENCE.—The Court of Appeals of St. Louis has refused to incorporate the "Institute of Christian Science." The Court doubtless recognized the "Institute" as a money-making scheme, under the pretence of religion.

A GRAVE MISTAKE.—The *Practitioner and News* of November 26, 1887, reports the following serious accident, which occurred recently in Detroit: A careful and skilful physician of this city, recently, being about to make a vaginal examination of a patient, ordered a servant of the lady to bring him some lard. The servant understood him to say "lye" instead of lard, and brought a teaspoonful of concentrated lye, which was at that time in use in the kitchen for scrubbing purposes. The physician, not dreaming of such a mistake, and finding the lye about of the consistency and color of lard, anointed his finger and introduced it. The patient complained of atrocious pain, which the doctor thought due to some nervous trouble until his finger began to smart, when he made a closer examination and discovered the unfortunate mistake. The caustic produced extensive sloughing of the vagina and vulva, which will necessarily be very refractory to treatment. The chagrin of the physician may be imagined, though he acted only as any of us might have done under the circumstances.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U. S. ARMY, FROM DECEMBER 6 TO DECEMBER 12, 1887.

STERNBERG, G. M., *Major and Surgeon.*—Assigned to duty as attending surgeon and examiner of recruits at Baltimore, Md.—*S. O. 285, A. G. O.*, December 8, 1887.

CLEARY, P. J. A., *Major and Surgeon.*—Assigned to duty at Fort Wingate, New Mexico.—*S. O. 285, A. G. O.*, Dec. 8, 1887.

ANDERSON, C. L. G., *First Lieutenant and Assistant Surgeon.*—Assigned to duty at Fort McDowell, Arizona.—*S. O. 285, A. G. O.*, December 8, 1887.

TAYLOR, A. W., *Captain and Assistant Surgeon.*—Assigned to duty at Fort Robinson, Nebraska.—*S. O. 285, A. G. O.*, December 8, 1887.

APPEL, A. H., *Captain and Assistant Surgeon.*—Assigned to duty at Camp at Highwood, Ill., relieving Assistant Surgeon H. O. Parley.—*S. O. 285, A. G. O.*, December 8, 1887.

PARLEY, H. O., *Captain and Assistant Surgeon.*—Will rejoin his proper station (Fort Wayne, Mich.).—*S. O. 285, A. G. O.*, December 8, 1887.

HOFF, JOHN VAN R., *Captain and Assistant Surgeon.*—Granted leave of absence for one month, to take effect on or about the 12th proximo.—*S. O. 128, Department of Missouri*, November 30, 1887.

MUNDAY, BENJAMIN, *Captain and Assistant Surgeon.*—Granted leave of absence for one month, to take effect about December 15, 1887.—*S. O. 280, A. G. O.*, December 2, 1887.

BANISTER, W. B., *First Lieutenant and Assistant Surgeon.*—Ordered to proceed at once from Fort Lowell, Arizona, to Fort Wingate, New Mexico, and report to the commanding officer for duty.—*S. O. 128, Department of Arizona*, December 1, 1887.

CABELL, J. M., *First Lieutenant and Assistant Surgeon.*—Ordered for duty at Fort Niobrara, Nebraska.—*S. O. 286, A. G. O.*, December 9, 1887.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE, FOR THE WEEK ENDING DECEMBER 12, 1887.

GASSAWAY, J. M., *Surgeon.*—When relieved to proceed to Cairo, Illinois, and assume charge of the Service, Dec. 9, 1887.

IRWIN, FAIRFAX, *Surgeon.*—Promoted and appointed Surgeon from date of oath, December 10, 1887.—December 8, 1887. (Omitted from previous report).—To proceed to Pittsburg, Pa., Wheeling, W. Va., Gallipolis, Ohio, Evansville, Ind., Cairo, Ill., Little Rock, Ark., Shreveport, La., New Orleans, La., Rome, Ga., Chattanooga and Nashville, Tenn., as Inspector, Nov. 12, 1887.

GUITERAS, JOHN, *Passed Assistant Surgeon.*—When relieved to proceed to Charleston, S. C., and assume charge of the Service, December 12, 1887.

BANKS, C. E., *Passed Assistant Surgeon.*—To proceed to Portland, Maine, and assume charge of the Service, Dec. 9, 1887.

CARMICHAEL, D. A., *Passed Assistant Surgeon.*—When relieved to proceed to Washington, D. C., for temporary duty in the office of the Supervising Surgeon-General, December 9, 1887.

BEVAN, A. D., *Passed Assistant Surgeon.*—Granted leave of absence for twenty days, December 7, 1887.

GLENNAN, A. H., *Passed Assistant Surgeon.*—To proceed to Key West, Fla., and assume charge of the Service, Dec. 12, 1887.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*